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INTRODUCTION.

This REVIEW is based on reports for June, 1893, from 3,056 regular and voluntary observers. These reports are classified as follows: 166 reports from Weather Bureau stations; 46 reports from United States Army post surgeons; 2,099 monthly reports from state weather service and voluntary observers; 31 reports from Canadian stations; 209 re-

ports through the Southern Pacific Railway Company; 505 marine reports through the co-operation of the Hydrographic Office, Navy Department; marine reports through the "New York Herald Weather Service"; monthly reports from local services established in all states and territories; and international simultaneous observations. Trustworthy newspaper extracts and special reports have also been used.

CHARACTERISTICS OF THE WEATHER FOR JUNE, 1893.

The month was warmer than usual from the interior of the middle Atlantic and New England states over the Lake region, the upper Mississippi valley, Minnesota, and the Dakotas and thence over the middle and southern Rocky Mountain and southern plateau regions. At stations in northern New England, western New York, the upper lake region, the Dakotas, and the Southwest the month was the warmest June on record. The month was cooler than usual along the New England coast, in the Southern States east of Texas, along the Pacific coast, and over the middle and northern plateau and northern Rocky Mountain districts. At points on the New England coast, and from the north Pacific coast over the northern Rocky Mountain region the month was the coolest June on record. At stations in southern New England, eastern New York, New Jersey, eastern Pennsylvania, and in the Red River of the North Valley and the west-central states the maximum temperature was the highest ever reported for June.

Frost was reported in New England on the 8th and 29th, in central Ohio and Lower Michigan on the 7th. Frost was also noted in Minnesota, North Dakota, the middle and northern Rocky Mountain and plateau regions, and the interior of the middle and north Pacific coast districts.

Hot winds damaged crops and grass in central Nebraska on the 7th, in parts of South Dakota on the 17th and 18th, and in North Dakota on the 19th and 23d. On the latter-named date a hot southwest wind prevailed at Dodge City, Kans., and the temperature reached 106°, the highest reading on record for June at that station.

PRECIPITATION.

The precipitation of the month was unevenly distributed. From the middle Mississippi valley to the South Carolina and Georgia coasts, from eastern Nebraska to the eastern Texas and western Louisiana coasts, in the lower valley of the Red River of the North, and along the immediate north Pacific coast there was a marked excess in monthly precipitation. At stations in southeastern Virginia and eastern

South Carolina the monthly rainfall was the greatest ever noted for June. Over portions of the middle Atlantic and New England states, the Ohio, Mississippi, and Missouri Valleys, and the Rocky Mountain and plateau regions less than the usual amount of rain fell. At stations in the lower lake region, the middle Missouri valley, New Mexico, Idaho, and eastern Washington the monthly precipitation was the least on record for June. Drought prevailed in western New York, western Maryland, northern Wisconsin, central Minnesota, and eastern South Dakota, and in Idaho and Colorado. On the ranges of central and south-central Texas, Utah, and southeastern Arizona stock suffered severely, owing to a scarcity of water and grass. Snowfall was reported only in the mountains of Colorado and at Hot Springs, Nev.

STORMS.

The most destructive storms of the month visited Iowa, Missouri, and Kansas on the 21st. On that date a tornado swept over the section about Perry and Williamstown, Kans., killing ten persons and destroying considerable property. On the 2d two persons were killed by a tornado near Spanish Camp, Tex. The afternoon of the 4th a thunderstorm of unusual severity visited Saint Louis, Mo. Severe thunderstorms were noted most frequently in Missouri, Nebraska, Michigan, Illinois, Florida, Ohio, and New York, where they occurred on six to eight dates.

FLOODS.

The month opened with the lower Mississippi River above the danger-line. At Cairo, Ill., the river reached a stage of 43.3 feet, 3.3 feet above the danger-line, on the 6th. At Memphis, Tenn., the maximum stage, 33.5 feet, 0.5 foot above the danger-line, was reported from the 11th to the 14th. At New Orleans, La., the river rose slowly until the night of the 23d, when a stage of 17.9 feet, the highest stage on record at that point, was reached. The most important crevasse of the month occurred in the levee in front of the Rescue Plantation, above Ascension Parish, La., on the 23d. This crevasse widened rapidly, and large areas of land in that section were flooded. The break at the Rescue Plantation caused a gradual fall in the river below that point. At New Orleans the water fell one foot from the 24th to the close of the month.

ATMOSPHERIC PRESSURE (expressed in inches and hundredths).

The distribution of mean atmospheric pressure for June, 1893, as determined from observations taken daily at 8 a. m. and 8 p. m. (75th meridian time), is shown on Chart II by isobars.

Chart VI exhibits the normal distribution of atmospheric pressure and prevailing wind-directions over the United States for June. The publication of the charts of this series is preliminary to the publication by the Weather Bureau of specially prepared data and charts showing meteorological and climatic features and conditions of the United States.

In June, 1893, the mean pressure was highest along the Oregon and northern California coasts, where it was 30.10, and the mean readings were above 30.00 over the Atlantic coast states. The mean pressure was lowest over the west part of the southern plateau and in the region north of North Dakota, where it was below 29.75, and the mean values were below 29.80 over the greater part of the southern plateau region and generally over the Dakotas and eastern Montana.

A comparison of the pressure chart for June, 1893, with that of the preceding month shows a general increase of pressure in the Mississippi Valley and thence to the Atlantic coast, and over the north Pacific coast states. In the north-central districts and thence to the middle and south Pacific coasts the mean pressure was lower than for May, 1893. The greatest increase of pressure occurred over Pennsylvania, New York, and New England, where the mean readings were .10 to .14 higher than for the preceding month, and the most marked decrease in mean pressure was noted over the Dakotas and western Minnesota, where the mean values were .10 to .13 lower than for May, 1893.

The mean pressure was above the normal over the middle Atlantic and New England states, the eastern and southern lake regions, and the Ohio, middle Mississippi, and lower Missouri valleys. The mean pressure was also above the normal from the middle and north Pacific coasts over the northern plateau region. From Lake Superior to eastern Montana and thence over the Rocky Mountain and plateau regions to Texas and the south Pacific coast the mean pressure was below the normal. The mean readings were also below the normal over the Southeastern States. The greatest departure above the normal was reported over New Brunswick and Nova Scotia, where the mean pressure was .10 to .11 higher than the June normal, and the most marked departure below the normal pressure was noted from Lake Superior over the eastern Dakotas, and in areas from the middle Gulf states to the south Pacific coast, where the mean values were about .05 lower than usual.

HIGH AND LOW AREAS.

The paths of areas of high and low barometric pressure over the United States and Canada during June, 1893, are shown on Charts IV and I, respectively, and some of the more prominent characteristics of the high and low areas are given in the table at the end of this chapter.

HIGH AREAS.

Five high areas appeared, the average number traced for June during the last 19 years being 6. Of the high areas traced for the current month 3 appeared on the north Pacific coast, traversed the continent, and disappeared off the middle and south Atlantic coasts, one advanced from Manitoba over the Lake region, and passed thence over the Canadian Maritime Provinces, and one moved from the middle Rocky Mountain region to the south Atlantic coast. The average velocity of the high areas was about 2 miles per hour greater than usual. The following is a description of the high areas whose tracks are plotted on Chart IV:

I.—The month opened with this high area central off the

north Pacific coast, where it remained nearly stationary until the morning of the 3d. On that date the high area moved eastward over the northern Rocky Mountain region, with pressure above 30.20 at the morning report of the 4th. Moving southeastward over the Rocky Mountain districts, with pressure rising above 30.30, this high area was attended the morning of the 5th by temperature falling to 34° at Cheyenne, Wyo., and light frost in southeastern Wyoming and northern Colorado. The morning of the 6th the barometer was high from the Mississippi River to the middle and southern Rocky Mountain districts, a fall in temperature of 10° to 20° was shown over the northern lake region, and heavy frost was reported in southern Wyoming and northern Colorado. During the 6th the center advanced to western Missouri, and a marked fall in temperature occurred in the Atlantic coast states, the Ohio Valley, and the Lake region. Reports of the morning of the 7th show this high area central over the middle Mississippi valley, and a general fall in temperature in the Atlantic coast states, the Ohio Valley, and the eastern lake region. Moving eastward this high area passed off the south New England and New Jersey coasts during the 8th, with pressure rising above 30.30 over the middle Atlantic and south New England states at the morning report.

II.—Appeared over the Red River of the North Valley the morning of the 9th, with a fall in temperature of 10° to 20° over the Dakotas and Minnesota, and by the evening report of that date had advanced north of Lake Superior, with a fall in temperature of more than 20° over Upper Michigan. During the 10th this high area remained nearly stationary over the upper lake region, and the temperature fell 15° to 25° over the southern lake region. By the evening of the 11th the center had advanced to Lake Erie, and the temperature had fallen about 10° over the interior of the middle Atlantic and New England states. During the 12th this high area remained nearly stationary over Lake Erie, with pressure rising to 30.20 at the morning report. On that date the temperature fell about 10° along the immediate middle Atlantic and New England coasts. By the morning of the 13th the high area had moved rapidly eastward over the Canadian Maritime Provinces, with pressure rising above 30.20.

III.—Apparently developed on the eastern Rocky Mountain slope during the 16th, and at the evening report of that date the pressure was relatively high from extreme northwestern Texas to the Red River of the North Valley. During the 17th the high area moved over the western lake region, and during the 18th advanced over the southern lake region. By the evening of the 19th this high area had passed southeastward off the Carolina coast, with pressure rising above 30.20.

IV.—Moved southeastward from the north Pacific coast to Idaho during the 21st. On that date the temperature fell 20° from central Nebraska over southern Minnesota. During the 22d the high area advanced to the lower Missouri valley, and a marked fall in temperature occurred in the Atlantic coast states, the Lake region, and the Southwest. During the 23d this high area advanced over the Ohio Valley, and passing thence slowly southward disappeared off the south Atlantic coast during the 25th.

V.—Appeared off the California coast on the 22d, with pressure above 30.20 and a temperature fall of 10° to 20° over the north Pacific coast states. By the evening of the 23d this high area had moved northward off the Washington coast, and the temperature had fallen 10° to 20° from the middle plateau region to the British Northwest Territory north of eastern Montana and the Dakotas. During the 24th the high area advanced to the northern Rocky Mountain region, and the temperature fell about 10° on the middle-eastern slope of the Rocky Mountains. Moving east-southeast the center

reached Iowa by the evening of the 25th, and passed thence to the extreme upper Mississippi valley by the night of the 26th. During the 27th the high area remained nearly stationary over the Lake Superior region, and on the 28th moved slowly eastward north of the Lake region. By the morning of the 29th this high area had passed southeastward off the middle Atlantic coast, and at the close of the month the pressure was high along the Atlantic coast from Nova Scotia to Florida.

LOW AREAS.

The average velocity of low areas in June is about 25 statute miles per hour, the velocity for May, June, and July being the lowest noted for the year. The low areas of June generally appear over the plateau or Rocky Mountain regions, are usually ill-defined and of small energy, and the tracks are confined principally to districts lying west of the Mississippi and north of the Ohio rivers.

Ten low areas appeared during June, 1893, the average number traced for the corresponding month of the last 21 years being 9.2. Of the low areas traced for the current month, 4 first appeared north of Montana, 3 apparently developed over the middle or southern Rocky Mountain and plateau regions, one occupied the middle Mississippi valley at the opening of the month, one moved from the Gulf of Mexico northeastward along the Atlantic coast, and one passed eastward over the southern lake region and thence off the New England coast. One of the low areas from the British Northwest Territory reached the Gulf of Saint Lawrence, and one apparently dissipated over the Dakotas. One of the low areas from the Rocky Mountain region disappeared over the Gulf of Mexico, one moved northward over the Saskatchewan Valley, and one disappeared by an increase of pressure over the extreme upper Mississippi valley. The low area from the middle Mississippi valley reached the Gulf of Saint Lawrence. The average velocity of the low areas was about 2 miles per hour less than the average velocity of low areas traced for June of preceding years.

The following is a description of the low areas whose tracks are plotted on Chart I:

I.—Was a continuation of low area XI for May, 1893, and at the opening of the month occupied the middle Mississippi valley, with pressure below 29.60. The pressure was also low over the Dakotas and the southern Rocky Mountain region. The evening report of the 1st showed low pressure in the Southwest and a trough of low pressure extending from the upper Mississippi valley to the region north of Montana. On that date rain fell generally in the central valleys, the Lake region, and the Northwest, the rainfall being heavy in the south Atlantic and east Gulf states, and thunderstorms occurred in Virginia, North Carolina, the Ohio Valley and Tennessee, Lower Michigan, the Dakotas, and Nebraska. During the 2d this low area advanced to Lake Superior and thence to Manitoba, with pressure below 29.60, rain fell generally over the country east of the Rocky Mountains, except in New England, thunderstorms occurred in the middle and south Atlantic states, the lower lake region, the Ohio Valley and Tennessee, the Dakotas, and Nebraska, and local storms were reported in eastern Texas.

The storm-center remained nearly stationary over Manitoba during the 3d, rain fell in the Atlantic coast states, the Lake region, the Ohio, Mississippi, and Missouri valleys, and thunderstorms were reported in the Lake region, the Ohio Valley and Tennessee, and the upper Mississippi valley. By the evening of the 4th the center of disturbance had advanced to Upper Michigan, rain continued in the north-central and northeast districts, and thunderstorms occurred in the middle Atlantic states, the Ohio Valley and Tennessee, the Lake region, and the upper Mississippi valley. During the 5th

the storm-center advanced from Lake Superior to the region north of Lake Ontario, with rain from the middle and lower Mississippi river to the middle Atlantic coast, thunderstorms occurred in the middle Atlantic states and the lower lake region, and local windstorms were reported in Tennessee and Ohio. During the 6th this low area disappeared over the north part of the Gulf of Saint Lawrence. On that date the rain area contracted over the Atlantic coast states, and thunderstorms, with heavy rain, were reported from Maine to North Carolina.

II.—Advanced from the southern plateau region, and on the 3d was central near extreme northwestern Texas, with pressure falling below 29.60. During the 4th the center moved over Oklahoma, and thence to central Texas, with heavy rain in areas in the Southwest, and during the 5th disappeared over the Gulf of Mexico, attended by heavy rains in the middle Gulf states, in Tennessee, Kentucky, and Arkansas, and on the Texas coast.

III.—Appeared over extreme northern Alberta the morning of the 6th and moved slowly southward, with pressure below 29.50 at the evening report. During the 7th the center of disturbance moved southeastward over the middle Missouri valley, with severe windstorms in the middle Missouri valley, and thunderstorms in South Dakota. Passing thence northeastward over Minnesota during the 8th this low area was attended by thunder and wind storms from the Dakotas and Iowa over Minnesota and Upper Michigan. During the 9th this low area moved eastward north of the Lake region, its passage being generally unattended by precipitation. The night of the 9th thunderstorms were reported in the southwestern lake region and the extreme upper Mississippi valley and on the southeast New England coast. By the morning of the 10th the storm-center had advanced over the lower Saint Lawrence valley.

IV.—Apparently developed in the upper Mississippi valley during the 10th, and at the evening report was central near Sandusky, Ohio. On that date severe thunderstorms, with heavy rain, occurred in Lower Michigan, northern Illinois, northern Indiana, southern Wisconsin, and northeastern Iowa. During the 11th the center of disturbance passed eastward off the New England coast, with thunderstorms in New York and the lower lake region.

V.—Appeared over Alberta on the 8th and remained nearly stationary north of Montana during the 9th and 10th, with pressure falling below 29.30 at the evening report of the 10th. On the 9th thunderstorms were reported in South Dakota, Nebraska, Kansas, and Iowa. During the 10th the temperature rose 10° to 20° in the Northwest and no precipitation was reported in that region. By the night of the 11th this low area had advanced over the Dakotas and Manitoba, and southerly gales prevailed throughout the Missouri Valley. During the 12th the center of disturbance remained nearly stationary over the Dakotas, and severe thunderstorms were reported in the upper Mississippi valley. By the morning of the 13th the storm-center had apparently recurved westward and united with number VI.

VI.—Apparently developed over the middle plateau region during the 12th and the evening report of that date showed pressure 29.38 at Salt Lake City, Utah. During the 13th the center of disturbance passed to the region north of the Dakotas, with thunderstorms in the middle and upper Mississippi and Missouri valleys. During the 14th the low area disappeared by an increase of pressure over the Saskatchewan Valley.

VII.—Appeared over the middle Rocky Mountain region the morning of the 14th, and moved thence slowly eastward over South Dakota, Nebraska, and Kansas during that date, with severe thunder, rain, and hail storms from Illinois and Wisconsin to the Missouri Valley and middle Rocky Moun-

tain region. During the 15th this low area disappeared by an increase of pressure over the extreme upper Mississippi valley. On that date thunder and hail storms were reported in the Ohio, upper Mississippi, and Missouri valleys and the southern lake region.

VIII.—Appeared over the eastern part of the Gulf of Mexico the morning of the 15th, and by the evening report of that date had advanced to a position near Jacksonville, Fla., with gales and heavy rain along the south Atlantic coast. During the 16th the storm-center moved slowly northeastward along the south Atlantic coast, with pressure falling below 29.60. The rain area extended to the south New England states, heavy rain fell along the Carolina coast, and northeast gales prevailed along the middle Atlantic and south New England coasts. During the 17th this low area remained nearly stationary off the middle Atlantic coast, apparently decreasing in energy. Rain, followed by clearing weather, was reported in the middle Atlantic and New England states, and northeast gales continued along the middle Atlantic and south New England coasts. During the 18th this storm passed northeastward beyond the region of observation.

IX.—Moved southeastward over Montana the night of the 16th, and remained nearly stationary over southeastern Montana, with pressure below 29.60, during the 17th. During the 18th and 19th this low area remained nearly stationary over the Dakotas, with temperature 10° to 20° above the normal in the Missouri and upper Mississippi valleys. On the 19th severe thunderstorms were reported in the middle Mississippi valley. During the 20th the storm-center moved slowly eastward over the Dakotas, the temperature continued exceptionally high in the middle Missouri valley, Kansas, Nebraska, and eastern Colorado, and thunderstorms were reported in the middle Mississippi, lower Ohio, and lower Missouri valleys, and the southwestern lake region.

The morning of the 21st a trough of low pressure extended from Minnesota and Manitoba to northwestern Texas, with two cyclonic centers, one over southern Minnesota and the other near Dodge City, Kans. By the evening report of the 21st this trough of low pressure had moved eastward, and

two centers of disturbance appeared, one over northern Lake Michigan and the other over southeastern Kansas. On that date thunderstorms were reported from the lower Missouri valley to the middle Atlantic coast, and severe local storms occurred in Iowa, Missouri, and eastern Kansas.

During the 22d the storm-center advanced eastward north of the lower lakes, with pressure below 29.50, a secondary storm appeared over New Jersey, and thunderstorms, with heavy rain, occurred over the middle and south Atlantic and south New England states, and the middle and upper Ohio valleys. During the 23d this low area apparently disappeared by an increase of pressure over the Saint Lawrence Valley. Low area IXb, which appeared over New Jersey, apparently passed southeastward south of Nova Scotia, and heavy rain and high northeast winds prevailed along the New England coast.

X.—Appeared over the northern plateau region and moved thence over Alberta by the evening of the 22d. During the 23d this low area advanced to Manitoba with pressure below 29.40, and the evening of that date a secondary development appeared over southwestern Kansas; severe gales prevailed over the Western and Northwestern States, and destructive thunder and hail storms were reported in Kansas and western Iowa. During the 24th the center of disturbance advanced to Lake Superior with a marked decrease in energy, and low area IXa disappeared by an increase of pressure over Kansas and Missouri. During the day and night of the 25th this low area moved eastward north of the Lake region, attended by thunderstorms in the Ohio Valley and Tennessee, and the lower lake region. The morning of the 26th a trough of low pressure extended from eastern Ontario over the middle Atlantic coast, with two cyclonic centers, one near the mouth of Chesapeake Bay and the other near Rockliffe, Ont. During the 26th heavy rain fell on the middle Atlantic coast, and thunderstorms were reported in the middle Atlantic states and the lower lake region. During the 27th this trough of low pressure moved eastward off the coast.

From the 25th to the close of the month, short-lived low areas, not traced, caused severe thunderstorms at points in the Western States and the central valleys.

Tabulated statement showing principal characteristics of areas of high and low pressure.

Barometer.	First observed.			Last observed.			Duration.	Velocity per hour.	Maximum pressure change in 12 hours, maximum abnormal temperature change in 12 hours, and maximum wind velocity.																
	Date.	Lat. N.	Long. W.	Lat. N.	Long. W.	Station.			Rise.	Date.	Station.		Fall.	Date.	Station.		Fall.	Date.	Station.		Direction.	Miles per hour.	Date.		
High areas.																									
I.....	3	48	124	41	75	5.0	22	Pueblo, Colo.....	.34	4	Oswego, N. Y.....	0	18	6	Pueblo, Colo.....	n.	36	4							
II.....	9	49	95	44	65	4.0	21	Winnipeg, Man.....	.50	9	Parry Sound, Ont.....	28	10	Sandy Hook, N. J.....	e.	26	13								
III.....	16	42	100	41	82	2.5	17	Rockliffe, Ont.....	.24	18	Prince Arthur, Ont.....	12	17	Titusville, Fla.....	ne.	35	19								
IV.....	21	46	125	33	82	4.0	31	Wichita, Kans.....	.42	22	Dodge City, Kans.....	15	22	Amarillo, Tex.....	s.	24	22								
V.....	23	47	125	47	80	5.0	23	Salt Lake City, Utah.....	.36	23	Qu'Appelle, N. W. T.....	22	23	Chicago, Ill.....	ne.	20	27								
Mean						4.1	23															29		
Low areas.																									
I.....	1	39	91	49	73	5.0	23	White River, Ont.....	.20	2	Green Bay, Wis.....	3	2	Chicago, Ill.....	ne.	48	1								
II.....	3	37	103	26	97	2.0	20	Pueblo, Colo.....	.26	2	Dodge City, Kans.....	13	2	Dodge City, Kans.....	ne.	40	3								
III.....	6	53	114	51	66	4.0	29	Medicine Hat, N. W. T.....	.48	6	Havre, Mont.....	24	6	Fort Canby, Wash.....	s.	51									
IV.....	10	42	83	43	71	1.0	27	Sandusky, Ohio.....	.16	10	Raleigh, N. C.....	7	10	Buffalo, N. Y.....	sw.	56	11								
V.....	8	53	115	45	100	4.0	13	Prince Albert, N. W. T.....	.42	10	Rapid City, S. Dak.....	22	11	Moorhead, Minn.....	se.	38	11								
VI.....	12	40	113	52	103	1.0	35	Qu'Appelle, N. W. T.....	.44	13	Denver, Colo.....	13	12	Huron, S. Dak.....	se.	44	13								
VII.....	14	41	103	44	95	1.0	23	Kansas City, Mo.....	.16	14	Chattanooga, Tenn.....	13	14	Amarillo, Tex.....	s.	59	14								
VIII.....	15	26	86	41	68	3.0	20	Savannah, Ga.....	.24	15	New York, N. Y.....	16	18	Southport, N. C.....	s.	55	16								
IX.....	17	46	106	47	75	6.0	12	Prince Albert, N. W. T.....	.30	17	Duluth, Minn.....	32	18	Fort Hill, S. C.....	w.	60	22								
X.....	22	53	114	46	77	3.5	24	Lander, Wyo.....	.42	22	Miles City, Mont.....	20	22	Fort Buford, N. Dak.....	w.	56	23								
Mean						3.0	23															50		

* Pikes Peak, Colo., sw. 86, 13th.

NORTH ATLANTIC STORMS FOR JUNE, 1893.

[Pressure in inches and millimeters; wind-force by Beaufort scale.]

The paths of storms that appeared over the west part of the north Atlantic Ocean during June, 1893, are shown on Chart I. These paths have been determined from reports of observations by shipmasters received through the co-operation of the Hydrographic Office, Navy Department, and the "New York Herald Weather Service."

The north Atlantic pressure for June is highest in an area extending from the Azores southwestward to the 50th meridian, where it is above 30.20 (767); it is lowest from southern Greenland over Iceland, where it is below 29.80 (757).

In June there is usually an increase of pressure over southern and eastern portions of the ocean, and a decrease from the region south of Newfoundland and Nova Scotia to Greenland and Iceland. The greatest increase of pressure occurs from the Azores and Madeira islands to the Spanish Peninsula, where the mean values are .05 inch, or more, higher, and the most marked decrease is shown from Newfoundland to Greenland and Iceland, where the normal pressure is .05 inch, or more, lower than for the preceding month.

The principal track of June storms is traced from Newfoundland east-northeast to the 20th meridian, where the track divides, one part passing over Scotland and the other southeastward over France. A less frequented track is traced from Labrador to Iceland and thence over Scandinavia. The average velocity of north Atlantic storms for June is 16 statute miles per hour, the velocity for May and June being the lowest noted for the year. In June an average of one storm per month traverses the north Atlantic Ocean from the American to the European coasts.

June, 1893, was not marked by storms of exceptional severity over the north Atlantic Ocean. The most important storm of the month, and the only storm traced across the ocean from the American to the European coasts, was low area VIII, which appeared over the east part of the Gulf of Mexico the morning of the 15th. From the 15th to the 18th this storm moved slowly northeastward along and off the south and middle Atlantic coasts, attended by heavy rain and moderate gales from the south New England coast to the Florida Peninsula. By the morning of the 19th the storm-center had advanced to a position south of Newfoundland, with central pressure about 29.50 (749), and gales of force 10 over the Grand Banks. During the 20th and 21st the center of disturbance remained nearly stationary southeast of Newfoundland, with pressure 29.20 (742) to 29.30 (744), and gales of force 9 to 11. From the 22d to the 24th the storm occupied the region east of Newfoundland without an apparent decrease in energy. Reports of the 25th show a movement southeastward towards the Azores. By the 26th the storm had advanced to a position north of the Azores, with pressure about 29.30 (744), and gales of force 7 to 9, after which it passed rapidly northeastward and disappeared north of the British Isles during the 27th.

The month opened with a storm of moderate energy central over mid-ocean in high latitudes. During the 3d this storm apparently passed eastward north of the British Isles. On the 3d a storm of considerable strength appeared near the 40th meridian, with pressure about 29.40 (747) and gales of force 9 to 11. By the 4th this storm had apparently increased in energy, and the pressure continued low over mid-ocean until the 8th, when low area I advanced rapidly eastward from the northern part of the Gulf of Saint Lawrence. From the 8th to the 13th the pressure continued generally high and fair weather prevailed over mid-ocean. On the 12th a disturbance appeared west of the Bay of Biscay, where it remained nearly stationary, without evidence of marked energy, during

the 13th. By the 14th the center of disturbance had apparently advanced towards the British Isles. Reports of the 15th indicate that this storm passed northwestward and united with a storm which appeared northeast of the Banks of Newfoundland on the 13th and moved thence eastward over mid-ocean. This area of low pressure remained nearly stationary over mid-ocean until the 19th when it was joined by low area VIII. On the 23d low area IXa was central off the southeast New England coast, from which position it moved slowly eastward as a storm of moderate strength and reached the 60th meridian the morning of the 26th, crossed the Grand Banks during the 27th, and occupied mid-ocean from the 28th to the close of the month. A storm apparently occupied the British Isles during the 23d and 24th, after which it disappeared to the eastward.

OCEAN ICE IN JUNE.

The following table shows the southern and eastern limits of the region within which icebergs or field ice were reported for June during the last 11 years:

Southern limit.			Eastern limit.		
Month.	Lat. N.	Long. W.	Month.	Lat. N.	Long. W.
June, 1883	40° 28'	51° 45'	June, 1883	48° 14'	42° 43'
June, 1884	41° 42'	47° 49'	June, 1884	44° 00'	45° 23'
June, 1885	39° 38'	48° 12'	June, 1885	45° 14'	41° 12'
June, 1886	40° 30'	53° 00'	June, 1886	49° 15'	40° 00'
June, 1887	40° 40'	48° 34'	June, 1887	43° 22'	39° 19'
June, 1888	43° 38'	43° 24'	June, 1888	43° 38'	43° 24'
June, 1889	42° 54'	49° 54'	June, 1889	46° 57'	40° 29'
June, 1890	40° 01'	52° 00'	June, 1890*	46° 08'	37° 07'
June, 1891	40° 15'	50° 24'	June, 1891	44° 15'	43° 47'
June, 1892	41° 44'	50° 40'	June, 1892	45° 50'	40° 46'
June, 1893	42° 08'	53° 19'	June, 1893	47° 20'	44° 19'
Mean.....	41° 09'	49° 55'	Mean.....	45° 50'	41° 41'

*On the 10th a small block of ice was reported in N. 46° 28', W. 28° 34'.

The limits of the region within which icebergs or field ice were reported for June, 1893, are shown on Chart I by ruled shading. The southernmost ice reported, 2 pieces of ice observed on the 9th in the position given, was about 1° north, and the easternmost ice reported, a large iceberg noted on the 23d in the position given in the table, was about 2½° west of the average eastern limit of ice for the month. Ice was encountered in great quantities on the northern edge of the Banks of Newfoundland, and many icebergs were reported along the east Newfoundland coast. On the 28th and 29th large bergs were reported in and to the eastward of the Straits of Belle Isle.

OCEAN FOG IN JUNE.

June is one of the months of greatest fog frequency near the Banks of Newfoundland. In June, 1893, there was an unusual prevalence of fog west of the 40th meridian.

The limits of fog belts west of the 40th meridian, as reported by shipmasters, are shown on Chart I by dotted shading. Near the Banks of Newfoundland fog was reported on 24 dates; between the 55th and 65th meridians on 16 dates; and west of the 65th meridian on 17 dates. Compared with the corresponding month of the last 5 years the dates of occurrence of fog near the Grand Banks numbered 8 more than the average; between the 55th and 65th meridians 3 more than the average; and west of the 65th meridian 2 more than the average. The fog noted by shipmasters and that reported by observers of the Weather Bureau on the middle Atlantic and New England coasts generally attended the approach or passage of general storms.

TEMPERATURE OF THE AIR (expressed in degrees Fahrenheit).

The distribution of mean temperature over the United States and Canada for June, 1893, is exhibited on Chart II by dotted isotherms. In the table of miscellaneous meteorological data the monthly mean temperature and the departure from the normal are given for regular stations of the Weather Bureau. The figures opposite the names of the geographical districts in the columns for mean temperature and departure from the normal show, respectively, the averages for the several districts. The normal for any district may be found by adding the departure to the current mean when the temperature is below the normal and subtracting when above. The monthly mean temperature for regular stations of the Weather Bureau represents the mean of the maximum and minimum temperatures.

The highest mean temperature for June, 1893, was reported in the Colorado Desert, California, where it was above 100, and the mean values were above 90 in the Gila and lower Colorado valleys. Over the greater part of the Florida Peninsula, along the immediate Gulf coast, generally over Texas, and in extreme southern New Mexico the mean readings were above 80. The mean temperature was above 70 in the Atlantic coast states south of New Jersey, in the central valleys to central Minnesota and North Dakota, and in the central valleys of California. The lowest mean temperature for June, 1893, was noted in the mountains of Colorado, where it fell below 50, and the mean readings were below 60 on the extreme southeast and east New England coasts, on the north shore of Lake Superior, in the middle and northern Rocky Mountain regions, over the northern plateau, Washington, and Oregon, and along the immediate Pacific coast to about the 37th parallel.

DEPARTURES FROM NORMAL TEMPERATURE.

The following table shows for certain stations, as reported by voluntary observers, (1) the normal temperature for June for a series of years; (2) the length of record during which the observations have been taken, and from which the normal has been computed; (3) the mean temperature for June, 1893; (4) the departure of the current month from the normal; (5) and the extreme monthly mean for June during the period of observation and the years of occurrence:

State and station.	(5) Extreme monthly mean for June.						
	(1) Normal for the month of June.	(2) Length of record.	(3) Mean for June, 1893.	(4) Departure from normal.	Highest.	Year.	Lowest.
Arizona.	0	Years	0	0	0		
Fort Apache	71.5	21	71.4	- 0.1	78.0	1876	63.6
Fort Mohave	88.5	22	87.8	- 1.0	95.3	1876	83.4
Whipple Barracks	69.6	22	65.0	- 4.6	78.9	1876	63.8
Arkansas.							
Keases Ferry	77.2	11	73.8	- 3.4	80.2	1885	73.8
California.							
Fort Bidwell	63.3	21	58.7	- 4.6	70.6	1871	55.4
Riverside	71.0	11	70.8	- 0.2	78.1	1883	67.1
Colorado.							
Las Animas	69.7	10	72.0	+ 2.3	73.5	1887	68.1
Florida.							
Merritt Island	78.5	11	81.0	+ 2.5	83.4	1890	73.8
Georgia.							
Forsyth	76.9	19	77.6	+ 0.7	81.9	1880, 1881	74.2
Idaho.							
Boise Barracks	66.5	19	62.7	- 3.8	74.3	1871	60.0
Fort Sherman	61.2	10	55.0	- 6.2	64.4	1882	55.0
Indiana.							
Lafayette	70.5	11	71.6	+ 1.1	75.7	1890	66.2
Indian Territory.							
Fort Supply	75.4	13	80.7	+ 5.3	80.7	1893	73.6
Iowa.							
Cresco	66.0	20	68.2	+ 2.2	72.0	1873	62.8
Kansas.							
Eureka Ranch	75.4	10	76.5	+ 1.1	80.0	1890	70.8
Independence	74.8	21	73.9	- 0.9	79.0	1872	70.8
Salina	75.3	10	.....	.....	79.3	1890	71.2
Louisiana.							
Grand Coteau	79.6	10	79.4	- 0.2	82.0	1891	78.0

Departures from normal temperature—Continued.

State and station.	(1) Normal for the month of June.	(2) Length of record.	(3) Mean for June, 1893.	(4) Departure from normal.	(5) Extreme monthly mean for June.		
					Highest.	Year.	Lowest.
Maine.	0	Years	0	0	0		
Orono	62.1	23	.....	.....	64.8	1884, 1889	57.5
Maryland.							
Cumberland	68.8	22	70.9	+ 2.1	74.0	1874	65.3
Michigan.							
Kalamazoo	67.4	16	70.6	+ 3.2	70.6	1893	63.7
Missouri.							
Sedalia	74.3	11	74.6	+ 0.3	80.5	1890	71.6
Montana.							
Fort Custer	63.8	11	63.8	0.0	66.5	1884	60.8
Nebraska.							
Fort Robinson	66.8	8	69.2	+ 2.4	71.7	1887	62.5
Nevada.							
Genoa (near)	69.4	17	72.3	+ 2.9	72.8	1890	66.4
New Hampshire.							
Brownsville	75.6	22	79.6	+ 4.0	83.7	1873	69.0
Carson City	64.6	15	58.7	- 5.9	69.9	1876	58.7
New York.							
Hanover	64.2	22	66.4	+ 2.2	68.8	1876	61.5
New Mexico.							
Fort Wingate	69.6	22	.....	.....	75.2	1881	63.6
North Carolina.							
Lenoir	70.5	21	70.5	0.0	75.0	1874	63.6
Oklahoma.							
Fort Reno	75.0	9	76.4	+ 1.4	76.9	1890	72.5
Oregon.							
Wellsboro	65.6	14	63.8	- 1.8	74.6	1883	61.1
South Carolina.							
Statesburg	76.3	12	74.6	- 1.7	80.5	1881	72.4
South Dakota.							
Fort Sully	68.9	22	73.9	+ 5.0	76.1	1871	63.6
Texas.							
Austin	83.2	20	78.2	- 5.0	85.9	1881	78.2
Silver Falls	76.1	6	79.5	+ 3.4	79.5	1893	71.8
Utah.							
Terrace	73.1	21	70.7	- 2.4	79.3	1878	60.8
Vermont.							
Strafford	65.7	20	66.2	+ 0.5	71.1	1884	58.4
Virginia.							
Dale Enterprise	72.5	13	72.7	+ 0.2	78.5	1890	68.2
Washington.							
Fort Townsend	58.6	20	52.6	- 6.0	61.7	1888	52.6
West Virginia.							
Parkersburg	.....	.....	.....	.....	.....	.....	.....
Wisconsin.							
Embarass	67.9	22	.....	.....	73.2	1873	63.2
Madison	67.2	20	69.8	+ 2.6	72.4	1873	63.5
Wyoming.							
Fort Washakie	62.4	9	61.1	- 1.3	68.9	1887	58.5

The month was warmer than usual in the middle Atlantic and New England states, and thence over the Lake region, the Ohio, upper Mississippi, middle Missouri, and Red River of the North valleys to the middle Rocky Mountain region, and thence to the southern boundary of the United States from eastern Texas to southwestern California. In the south Atlantic and middle and east Gulf states, and from the Pacific coast over the middle and northern plateau and the northern Rocky Mountain regions the month was cooler than usual. The greatest departure above the normal temperature was noted over the eastern and northern lake regions, in the extreme upper Mississippi valley, in the valley of the Red River of the North, and at Fort Stanton, N. Mex., where the mean was 4, or more, higher than the June average. The most marked departure below the normal temperature was reported in the valley of the Columbia River, where the mean readings were 5, or more, lower than usual. Elsewhere the departures from the normal temperature were less than 2.

TEMPERATURE, JANUARY TO JUNE, 1893.

For the period January 1 to June 30, 1893, the mean temperature averaged about 4 below the normal over the northern plateau region, averaged 2 to 3 below the normal in the upper Mississippi valley, over the middle plateau region, and

on the middle and north Pacific coasts, and was 1 to 2 below the normal in the New England, middle, south Atlantic, and east Gulf states, the Ohio Valley and Tennessee, the Lake region, the Missouri Valley, on the northeast and middle-eastern slopes of the Rocky Mountains, and on the south Pacific coast. On the southeast slope of the Rocky Mountains the mean temperature was about 2 above the normal, and in the extreme northwest it was about 1 above the normal. In the west Gulf states and over the southern plateau region the mean temperature averaged about normal for the period named.

YEARS OF HIGHEST MEAN TEMPERATURE FOR JUNE.

At Northfield, Vt., Rochester, N. Y., Alpena, Marquette, and Kalamazoo, Mich., Abilene and Silver Falls, Tex., Fort Supply, Ind. T., Fort Stanton, N. Mex., Valentine, Nebr., Huron and Rapid City, S. Dak., the mean temperature for the current month was the highest reported for June during the respective periods of observation. The highest mean temperature for June was reported at points on the immediate New England and New York coasts in 1892; in the Carolinas, northern Georgia, and eastern Tennessee, and from Lower Michigan to the lower Ohio valley in 1890; from the Oregon coast over the northern plateau and the north part of the middle plateau in 1889; on the south Pacific coast in 1883; from the middle-eastern slope of the Rocky Mountains over the south part of the Gulf States in 1881; in New York and Pennsylvania in 1886; and from Virginia and Maryland over Kentucky and central Tennessee in 1874.

YEARS OF LOWEST MEAN TEMPERATURE FOR JUNE.

At Portland, Me., Nantucket, Mass., Helena, Mont., Fort Sherman, Idaho, Carson City, Nev., Walla Walla, Spokane, Olympia, Fort Canby, and Fort Townsend, Wash., Portland, Roseburg, and Astoria, Oregon, the mean temperature for the current month was the lowest reported during the respective periods of observation. The lowest mean temperature for June was reported from Michigan and Wisconsin to east Texas in 1889; in the south Atlantic and east Gulf states and in the Sacramento Valley, California, in 1884; and from the lower lake region to the New Jersey and south New England coasts in 1881.

MAXIMUM TEMPERATURE.

At Nantucket, Mass., New London, Conn., Philadelphia, Pa., Moorhead and Saint Vincent, Minn., Valentine, Nebr., and Dodge City and Wichita, Kans., the maximum temperature for the current month was higher than previously reported for June.

The highest temperature reported for the current month by a regular station of the Weather Bureau was 111 at Yuma, Ariz., on the 7th. The temperature rose above 100 in the San Joaquin Valley, California, on the 4th, and in the Sacramento Valley, California, on the 30th. 100 and above was reached generally in Kansas, Oklahoma, and western Texas from the 21st to the 24th, and in South Dakota and adjoining parts of Minnesota and North Dakota on the 11th and 12th. The highest temperature of the month was noted generally in the Ohio Valley on the 19th, when the maximum values varied

from 91 to 94, and in the middle Atlantic and New England states on the 20th, when the temperature rose to 98 at Philadelphia, Pa., and Baltimore, Md. The lowest maximum temperature, 69, was reported at Eureka, Cal.; the maximum readings were below 80 on the extreme north Pacific coast and at San Diego, Cal., and the maximum values were below 90 over extreme northern New England, on the southeast New England coast, generally in the Lake region, over the middle and northern plateau and northern Rocky Mountain regions, and in the north Pacific coast states.

MINIMUM TEMPERATURE.

At Montrose, Colo., and Roseburg, Oregon, the minimum temperature for the current month was the lowest ever reported for June.

The lowest temperature reported by regular stations of the Weather Bureau was 32, at Lander, Wyo., on the 3d, and at Cheyenne, Wyo., on the 6th. Minimum temperature below 40 was noted in Upper Michigan, over the middle and northern Rocky Mountain and middle and northern plateau regions, and in the north Pacific coast states, except in the valley of the Columbia River. The highest minimum temperature, 71, was noted at Key West, Fla., and the minimum readings were above 60 along the south Atlantic coast and over the southern portions of the Gulf States and Texas.

RANGES OF TEMPERATURE.

The greatest daily range of temperature is shown in the table of miscellaneous meteorological data. The greatest monthly range of temperature, 61, was noted at Rapid City, S. Dak. From the Dakotas the monthly ranges decreased eastward to less than 40 on the south New England and middle Atlantic coasts, to less than 30 along the immediate south Atlantic coast and over the Florida Peninsula, to 18 at Key West, Fla., and to 20 at Galveston, Tex. The monthly ranges decreased westward to less than 30 at points on the immediate middle and north Pacific coasts, and to 22 at San Diego, Cal.

FROST.

Light frost was reported in northern New Hampshire and northern Vermont on the 8th, in Maine on the 17th, and at Taunton, Mass., on the 29th. Light frost was reported in central Ohio on the 7th and 8th, and in the interior and north portions of Lower Michigan on the 7th. Heavy frost on the 6th caused some damage about Cheyenne, Wyo. On the 10th and 18th heavy frost caused considerable damage about Jolon, Cal. Garden vegetation was damaged by frost about Snowville, Utah, on the 14th. Heavy frost killed tender vegetation at Show Low, Ariz., on the 16th. Light frost was noted at Roseburg, Oregon, the morning of the 19th. The observer reports that this was the latest frost ever noted at that station, and that the minimum temperature was the lowest on record for Roseburg for June. At Meadow Valley, Cal., garden vegetables were destroyed by heavy frost on the 19th. On the 22d tender vegetation about Lander, Wyo., was injured by frost. At Vernonia, Oregon, the temperature fell to 34 on the 29th, and heavy frost injured garden vegetables.

PRECIPITATION (expressed in inches and hundredths).

The distribution of precipitation over the United States and Canada for June, 1893, as determined from reports of more than 2,000 stations, is exhibited on Chart III. In the table of miscellaneous meteorological data the total precipitation and the departure from the normal are given for regular stations of the Weather Bureau. The figures opposite the names of the geographical districts in the columns for

precipitation and departure from the normal show, respectively, the averages for the several districts. The normal for any district may be found by adding the departure to the current mean when the precipitation is below the normal and subtracting when above.

In June the monthly precipitation is usually greatest over central and eastern portions of the Florida Peninsula, where

it exceeds 8.00. Along the south Atlantic and middle Gulf coasts, and in areas in Illinois and Iowa the monthly amount generally exceeds 6.00. Over the greater part of the country from the eastern Rocky Mountain slope to the Atlantic coast south of the 40th parallel the normal precipitation for June is 4.00 to 6.00. Along the immediate north Pacific coast and in areas in the lower valley of the Columbia River the monthly amount is usually 2.00 to 4.00. Over the plateau region and in California south of the 40th parallel the normal precipitation for June is generally less than 1.00.

In June, 1893, the monthly precipitation was greatest in north-central and west-central portions of the Florida Peninsula and in areas along the south Atlantic coast, Arkansas, and Louisiana, where it exceeded 10.00. The monthly amount was in excess of 8.00 over eastern portions of the south Atlantic states, over the greater part of the Florida Peninsula, in southeastern Virginia, in an area extending from south-central Arkansas over western Louisiana and extreme eastern Texas, and at stations in eastern Kansas. Along the immediate north Pacific coast 4.00 to 7.00 fell. In Arizona, southern Nevada, southern Utah, and over interior and eastern parts of California no precipitation was reported. In the Rocky Mountain and middle and northern plateau regions, and in extreme northern and western California less than 1.00 was reported.

DEPARTURE FROM NORMAL PRECIPITATION.

More than the usual amount of precipitation was reported in Ontario and the valley of the Red River of the North, in the south Atlantic states, southern Virginia, Kentucky, central and eastern Tennessee, in an area extending from Nebraska to the west Gulf coast, and along the Pacific coast north of the mouth of the Columbia River. The greatest excess in precipitation, 11.20, was noted at Charleston, S. C. At Norfolk, Va., the monthly rainfall exceeded the normal amount for June by 4.1, and the excess was greater than 3.00 at Shreveport, La., Cairo, Ill., and Tatoosh Island, Wash. Less than the usual amount of rain fell generally in the Canadian Maritime Provinces, the middle Atlantic and New England states, along the Florida and middle and east Gulf coasts, in the Lake region, middle and upper Ohio, upper Mississippi, and upper Missouri valleys, and over the Rocky Mountain and plateau and middle and south Pacific coast regions. The most marked deficiency in monthly precipitation was reported in eastern New Brunswick, at southern Lake Erie stations, and at Springfield, Ill., Duluth, Minn., and Huron, S. Dak., where the amount was 3.00, or more, less than usual. The deficiency was 2.00, or more, at Kittyhawk, N. C., Pensacola, Fla., Memphis, Tenn., and at stations in the lower lake region, the Ohio, upper Mississippi, and upper Missouri valleys, and southwestern Texas.

Considered by districts the average percentage of the normal in districts where the monthly precipitation was in excess was about as follows: north Pacific coast, 136; south Atlantic states, 132; west Gulf states, 124; extreme northwest, 112. In districts where the monthly precipitation was deficient the percentage of the normal was about as follows: middle Pacific coast, 13; northern plateau region, 25; southeast slope of the Rocky Mountains, 31; lower lake region and northeast slope of the Rocky Mountains, 61; Key West, Fla., 66; upper lake region, 74; New England, 75; upper Mississippi valley, 76; middle-eastern slope of the Rocky Mountains, 83; Missouri Valley, 87, and east Gulf states, 88. In the middle Atlantic states, the Ohio Valley and Tennessee, over the middle plateau region, and along the south Pacific coast the monthly precipitation averaged about normal.

The following table shows for certain stations, as reported by voluntary observers, (1) the average precipitation for June for a series of years; (2) the length of record during

which the observations have been taken and from which the average has been computed; (3) the total precipitation for June, 1893; (4) the departure of the current month from the average; (5) and the extremes for June during the period of observation and the years of occurrence:

State and station.	(1) Average for the month of June.	(2) Length of record.	(3) Total for June, 1893.	(4) Departure from average.	(5) Extremes for June.			
					Greatest.		Least.	
					Am't.	Year.	Am't.	Year.
Arizona.	Inches.	Years	Inches.	Inches.	Inches.		Inches	
Fort Apache	0.64	17	0.00	- 0.64	3.27	1882	0.00	†
Fort Mohave	0.05	22	0.00	- 0.05	1.00	1872	0.00	*
Whipple Barracks	0.16	22	0.00	- 0.16	1.24	1872	0.00	†
Arkansas.								
Keesee Ferry	4.89	11	5.60	+ 0.71	7.14	1882	2.18	1890
California.								
Fort Bidwell	1.09	22	0.01	- 1.08	4.29	1884	T.	1883
Riverside	0.07	12	0.00	- 0.07	0.52	1884	0.00	
Colorado.								
Las Animas	1.67	10	1.84	+ 0.17	2.79	1884	0.05	1890
Florida.								
Merritt Island	7.38	15	7.67	+ 0.29	14.28	1889	3.32	1878
Georgia.								
Forsyth	4.73	19	6.79	+ 2.07	11.14	1886	1.48	1879
Iowa.								
Boise Barracks	0.96	19	T.	- 0.96	3.41	1884	T.	1893
Fort Sherman	1.39	9	0.75	- 0.64	2.11	1885	0.16	1882
Indiana.								
Lafayette	4.39	11	1.93	- 2.46	9.10	1883	1.93	1893
Indian Territory.								
Fort Supply	2.91	13	0.74	- 2.17	5.44	1885	0.40	1874
Iowa.								
Cresco	5.43	20	4.14	- 1.29	11.71	1890	2.46	1887
Kansas.								
Independence	5.19	21	3.93	- 1.26	11.26	1881	2.05	1875
Salina	3.07	10	.....	.....	6.11	1883	0.92	1892
Louisiana.								
Grand Coteau	6.33	10	7.40	+ 1.07	11.31	1886	2.50	1884
Maine.								
Orono	3.51	23	.....	.....	5.96	1892	0.73	1880
Maryland.								
Cumberland	3.90	21	2.12	- 1.78	10.08	1892	0.86	1885
Michigan.								
Kalamazoo	4.89	17	2.94	- 2.04	8.10	1883	1.78	1878
Missouri.								
Sedalia	5.58	14	3.40	- 2.18	9.24	1891	1.11	1890
Montana.								
Fort Custer	2.82	12	1.62	- 1.20	5.02	1891	0.90	1889
Nebraska.								
Fort Robinson	3.11	9	1.95	- 1.16	11.91	1892	0.60	1890
Genoa (near)	4.30	17	3.23	- 1.07	8.48	1891	1.50	1892
Nevada.								
Browns	0.24	22	0.00	- 0.24	1.13	1878	0.00	†
Carson City	0.44	15	0.00	- 0.44	1.97	1884	0.00	1893
New Hampshire.								
Hanover	3.64	21	4.72	+ 1.08	7.42	1892	1.74	1873
New Mexico.								
Fort Wingate	0.64	21	T.	- 0.64	3.15	1873	0.00	†
New York.								
Cooperstown	4.24	22	2.20	- 2.04	7.31	1872	1.94	1873
Plattsburg Barracks	3.01	22	2.42	- 0.59	7.62	1892	1.27	1881
North Carolina.								
Lenoir	4.31	21	3.50	- 0.81	10.30	1884	0.90	1881
Oklahoma.								
Fort Reno	4.67	10	3.25	- 1.42	10.33	1885	0.28	1886
Fort Sill	3.86	21	0.51	- 3.35	8.16	1885	0.21	1881
Oregon.								
Bandon	1.72	15	2.29	+ 0.57	6.11	1881	0.12	1883
Pennsylvania.								
Dyberry	2.93	22	3.06	+ 0.13	6.07	1892	1.13	1873
Grampian	4.51	15	3.25	- 2.26	9.85	1884	2.25	1893
Wellsville	6.97	14	1.42	- 5.55	17.47	1881	1.42	1893
South Carolina.								
Statesburg	3.64	12	7.27	+ 3.63	7.27	1893	1.38	1881
South Dakota.								
Fort Sully	3.33	22	2.80	- 0.53	6.41	1890	1.50	1871
Texas.								
Austin	3.18	20	1.85	- 1.33	8.32	1872	0.00	1881
Silver Falls	2.44	6	1.39	- 1.05	3.84	1890	0.98	1887
Utah.								
Terrace	0.23	20	0.00	- 0.23	1.23	1886	0.00	†
Vermont.								
Stratford	3.61	20	2.05	- 1.56	7.86	1892	1.60	1884, 1885
Virginia.								
Dale Enterprise	5.63	13	3.23	- 2.40	11.00	1884	1.73	1882
Washington.								
Fort Townsend	1.46	18	1.31	- 0.15	4.10	1875	0.24	1886
West Virginia.								
Parkersburg	3.68	8	.....	.....	4.84	1890	1.30	1885
Wisconsin.								
Embarass	5.70	22	.....	.....	11.40	1880	1.75	1874
Madison	4.49	20	6.69	+ 2.20	9.31	1880	1.06	1886
Wyoming.								
Fort Washakie	1.08	9	0.63	- 0.46	3.98	1889	T.	1881

*Generally. † Frequently.

PRECIPITATION, JANUARY TO JUNE.

For the period January 1 to June 30, 1893, inclusive, the precipitation averaged about normal in the middle and south

Atlantic and New England states, the Ohio Valley and Tennessee, the upper Mississippi and Missouri valleys, the Lake region, the extreme northwest, the middle and southern plateau regions, and along the middle Pacific coast. Over the northern plateau region and along the north and south Pacific coasts the rainfall was two-tenths to three-tenths greater than usual. On the middle and southeast slopes of the Rocky Mountains the precipitation was about one-half, and in the Gulf States and on the northeast slope of the Rocky Mountains it was seven-tenths to eight-tenths of the usual amount for the period named.

YEARS OF GREATEST PRECIPITATION FOR JUNE.

At Norfolk and Cape Henry, Va., Charleston and Statesburg, S. C., and Port Eads, La., the monthly precipitation was the greatest noted for June during the respective periods of observation. The greatest precipitation for June was reported over the greater part of the Dakotas in 1890; from west-central Mississippi over central Texas in 1889; on the Pacific coast north of the 40th parallel in 1888; in Florida and the lower Rio Grande valley in 1887; in the interior of the south Atlantic states in 1886; in California south of the 40th parallel in 1884; in the lower Missouri valley in 1883; in the southern plateau region and a part of the upper Mississippi valley in 1882; on the southeast New England coast and from southern Lower Michigan over western Pennsylvania in 1881; over northern New York in 1879; in Upper Michigan in 1878; and along the south Atlantic coast in 1876.

YEARS OF LEAST PRECIPITATION FOR JUNE.

At Rochester, N. Y., Grampian and Wellsboro, Pa., Cleveland, Sandusky, and Toledo, Ohio, Lafayette, Ind., Huron, S. Dak., Santa Fe and Fort Stanton, N. Mex., Carson City, Nev., Boise Barracks, Idaho, Walla Walla, Wash., and Eureka, Cal., the monthly precipitation was the least reported during the respective periods of observation. The least precipitation for June was reported from eastern Washington over Montana and in the valley of the Red River of the North in 1889; and along the west Gulf coast and on the southeast slope of the Rocky Mountains in 1881.

EXCESSIVE PRECIPITATION.

The following tables show, by states, the number of stations reporting monthly precipitation to equal or exceed 10.00; precipitation to equal or exceed 2.50 in 24 hours; and precipitation to equal or exceed 1.00 in 1 hour in June, 1893:

Monthly precipitation to equal or exceed 10.00.

State.	Number of stations.	State.	Number of stations.
Florida	11	Georgia	
South Carolina	9	Kansas	
Louisiana	3	North Carolina	
Arkansas	2		

Precipitation to equal or exceed 2.50 in 24 hours.

State.	Number of stations.	Dates.	State.	Number of stations.	Dates.
Louisiana	18	1, 2, 2, 2, 3, 3, 4, 5, 5-6, 19, 20-	North Carolina	10	5-6, 6-7, 7, 7-8, 14, 16, 16-17, 28,
South Carolina	17	1, 2, 2, 2, 2-3, 6-7, 7-8, 14, 15, 16, 18, 18-19, 21,	Nebraska	9	3, 3-4, 9-10, 26, 27-
Georgia	14	1, 2, 6, 8-9, 13, 13-14, 14-15, 15-16, 16, 28,	Missouri	7	4, 10, 19-20, 21, 29-
Alabama	13	*1, 5, 5-6, 6,	Virginia	6	1-2, 16, 16-17,
Florida	11	8, 9, 13, 14-15, 15,	Kansas	5	3-4, 4, 23, 25, 26,
Tennessee	11	29-30, 30,	Iowa	4	3, 5, 17-18, 26, 30,
Mississippi	10	*1, 4-5, 5, 5-6,	Kentucky	4	4-5, 5,

Precipitation to equal or exceed 2.50 in 24 hours—Continued.

State.	Number of stations.	Dates.	State.	Number of stations.	Dates.
North Dakota	3	1, 28-29, 30-	Connecticut	1	6,
Ohio	3	3-4, 4, 16-	Indiana	1	21,
Texas	3	1-2, 5-6, 18-	Washington	1	9-10,
Massachusetts	2	22, 22-23,	Minnesota	1	14,
New York	2	21-22, 26,	Pennsylvania	1	22,

Precipitation to equal or exceed 1.00 in 1 hour.

Arkansas	10	14, 17, 25, 26, 30,	New Jersey	3	6, 22,
Georgia	10	5, 6, 13, 18, 22, 28, 29,	North Dakota	3	26, 28,
Kansas	10	4, 7, 14, 21, 22, 24, 25, 26, 30,	Tennessee	2	5, 15,
Missouri	10	13, 20, 21, 25, 30,	North Carolina	2	5, 12,
Florida	7	4, 7, 8, 9, 14, 18, 21, 28, 30,	Illinois	2	4, 13,
Louisiana	5	3, 4, 8, 16, 17,	Pennsylvania	2	22,
Nebraska	5	3, 9, 26, 29,	Michigan	2	3,
Iowa	5	9, 10, 11, 13, 21,	Mississippi	2	16, 19,
New York	4	11, 12, 26, 29,	Connecticut	1	6,
South Carolina	4	2, 7, 8, 14,	Indiana	1	3,
Texas	4	12, 15, 17, 19,	Minnesota	1	14,
Alabama	3	*3, 14,	Ohio	1	4,

* May 31-June 1.

Table of excessive precipitation, June, 1893.

State and station.	Monthly rainfall to inches, or more,	Rainfall 2.50 inches, or more, in 24 hours.		Rainfall 1 inch, or more, in one hour.	
		Amt.	Day.	Amt.	Time.
Alabama.					
Camden		Inches.	Inches.	Inches.	h. m.
Cordova				2.05	2 00
Do		3.60	1		3
Florence a		3.53	5		
Florence b		3.00			
Lynn a		4.36	5		
Maysville		3.20	*		
Mobile		2.60	*		
Montgomery		3.66	5-6		
Mount Willing		2.59	6		
Newberg		2.95	*		
Do		3.50			
Selma a		4.88	5		
Do			1.06	0 40	†
Tallasseet Falls		2.93	6	1.18	1 10
Tuscaloosa		2.52	5		
Tuscumbia b		2.59	*		
Do		3.00	5		
Arkansas.					
Arkansas City				2.00	2 00
Bee Branch		3.00	30	3.00	2 30
Camden a	10.94	2.70	5	2.61	2 00
Camden b	10.24				17
Do		3.17	17-18	1.23	1 00
Conway				1.00	0 30
Fayetteville		2.75	26	2.75	1 20
Lonoke				2.25	0 30
Mount Nebo				1.26	1 00
Osceola		3.46	3		
Ozark				0.95	0 17
Stuttgart				1.19	1 00
Connecticut.					
Canton		2.97	6		
West Simsbury				2.20	2 00
Florida.					
Avon Park	13.49	2.65	30	1.50	1 00
Bristol				1.15	1 00
Brooksville	14.19			2.10	1 30
Do				1.57	0 30
Do				1.10	1 00
Chattahoochee Landing		3.90	8		
Fort Meade	13.12				
Gainesville	11.00	4.96	14-15		
Homeland	10.16	3.21	15		
Jupiter		3.30	29-30	2.20	1 00
Kissimmee	12.47	2.74	9		
Lake City	10.82				
Manatee					
Merritts Island		3.18	9		
Mullet Key					
Myers	10.11	3.05	13	1.29	0 56
Ocala		2.64			
Plant City		2.63	14-15		
Saint Andrews Bay		3.97	14-15		
Saint Petersburg				2.04	1 10
Do				1.06	1 00
Tampa	10.89			1.20	0 31
Tarpon Springs	10.72				8
Georgia.					
Adairsville		2.80	6		
Alapaha		4.93	15-16		
Augusta				1.00	1 00
Athens a				1.42	0 30

Table of excessive precipitation—Continued.

State and station.	Monthly rainfall 10 inches, or more.		Rainfall 2-50 inches, or more, in 24 hours.		Rainfall of 1 inch, or more, in one hour.	
	Amt.	Day.	Amt.	Time.	Amt.	Day.
<i>Georgia—Continued.</i>						
Athens b.						
Bragg.	3.94	15		1.15	1 00	22
Camack.	3.15	13				
Columbus.				1.90	0 30	28
Darien.	13.25	7.00	13	7.00	2 30	13
Eastman.	3.43	13-14				
Fleming.	3.10	8-9				
Hawkinsville.	3.29	2				
Hephzibah.	3.00	7	1.40	1 00	18	
Lincolnton.			1.38	1 00	29	
Lumpkin.	3.82	26	3.82	1 30	28	
McArthur.	3.13	15	2.00	1 00	6	
Newnan.	3.10	6				
Quitman.			2.50	1 30	28	
Rome.			2.46	1 00	5	
Thomasville.	4.75	14-15				
West Point.	3.73	6				
<i>Illinois.</i>						
Cairo.	3.03	2-3				
Carlinville.	2.54	24-25				
East Peoria.	2.65	13	2.65	0 40	13	
Herrins Prairie.			1.20	0 20	4	
<i>Indiana.</i>						
Laconia.			1.00	1 00	3	
Marengo.	2.90	21				
<i>Iowa.</i>						
Atlantic.	4.27	9-10	3.60	2 30	9	
Centerville.			1.00	0 30	21	
Des Moines.			1.10	1 10	11	
Dubuque.	2.84	10	2.00	1 50	10	
Indianola.	2.50	11				
Monticello.	2.59	10				
Mount Pleasant a.			1.12	0 40	13	
<i>Kansas.</i>						
Atchison.			1.22	1 00	4	
Concordia.			1.07	0 35	7	
Havensville.	3.20	3-4				
Do.	2.60	23				
Kansas City.			1.13	1 00	14	
Lebo.	13.10	2.57	4			
McPherson.		5.23	26	8.23	3 10	26
Manhattan c.		3.02	4			
Marion.	2.86	4				
Monument.	3.00	25	3.00	1 40	25	
Plainville.			1.50	1 50	30	
Wakefield.			2.09	0 53	24	
Wamego.			2.16	1 30	22	
Wichita.			1.08	1 00	21	
<i>Kentucky.</i>						
Franklin.	4.49	4-5				
Greensburg.	2.53	4-5				
Munfordville.	3.11	5				
Russellville.	3.95	4-5				
<i>Louisiana.</i>						
Amite.	10.56	3.08	19			
Calhoun.	2.65	3	1.02	0 45	16	
Coushatta.			3.20	2		
Do.			2.80	4	2.80	1 05
Covington.			2.52	1-2		
Donaldsonville.			4.03	19	2.02	2 00
Grand Coteau.			2.50	20		
Franklin.			2.90	1		
Lake Charles.			11.20	4.50		
Many.			2.69	3		
Minden.						
Monroe.						
New Orleans.			3.02	5-6		
Oxford.			3.24	2-3		
Paincourtville.			11.39	4.20	19	
Plaquemine.			4.13	19		
Shreveport.			3.62	2-3	2.19	2 00
Sugar Ex. Station.			2.68	5		
Sugartown.			4.10	2		
Wallace.			2.59	4		
Winnfield.			3.50	3		
<i>Massachusetts.</i>						
Provincetown.			2.86	22		
South Dennis.			3.34	22-23		
<i>Michigan.</i>						
Berlin.						
Detroit.						
Blooming Prairie.						
Grand Meadow.						
<i>Mississippi.</i>						
Batesville.			2.75	14		
Biloxi.			3.76	4-5		
Brookhaven.			3.25	1		
Corinth.			3.45	5		
Crystal Springs.			3.10	1		
Fayette.			3.50	5		
Greenville b.						
Haschurst.			5.67	5		
Hernando.			2.85	1-2		
Moss Point.			3.50	8		
Pontotoc.			2.64	2		
Water Valley.			4.12	5		
<i>Missouri.</i>						
Arthur.			3.31	4		

Table of excessive precipitation—Continued.

State and station.	Monthly rainfall 10 inches, or more.		Rainfall 2-50 inches, or more, in 24 hours.		Rainfall of 1 inch, or more, in one hour.	
	Amt.	Day.	Amt.	Day.	Amt.	Day.
<i>Missouri—Continued.</i>						
Bethany.						
Brunswick.	3.31	29-30				
Gallatin.	3.60	30				
Glasgow.	3.07	10				
Houston.	2.70	19-20				
Humansville.						
Kansas City.						
Marshall.						
New Boston.	3.40	21				
New Palestine.	3.02	21	3.02	2 00	21	
Osceola.						
Palmyra.						
Platte River.						
Princeton.						
Steelville.						
Do.						
<i>Nebraska.</i>						
Ashland.	2.79	3-4				
Do.	3.67	9-10				
Cooleyton.	2.50	27-28				
David City.	2.75	3				
Genoa.						
Harvard.	3.00	29				
Kearney.	2.83	26	2.83	1 00	26	
Kennedy.						
Lincoln.			1.77	1 00	9	
Omaha.	3.55	3-4	1.55	1 00	3	
Tekamah.	3.40	3				
Turlington.	2.92	3				
Weeping Water.	2.56	3-4				
<i>New Jersey.</i>						
Asbury Park.	2.85	26				
Chester.	2.82	22				
Dover.	3.55	22	3.02	3 00	22	
Locktown.	2.65	22-23				
South Orange.			1.22	1 00	6	
<i>New York.</i>						
Ampersand.			1.27	0 35	11	
Brookfield.			2.03	1 00	12	
South Kortright.	2.63	21-22				
Turin.			1.32	1 20	29	
Victor.	2.55	26	2.00	2 00	26	
<i>North Carolina.</i>						
Hatteras.	2.56	16-17				
Highlands.	2.50	5-6				
Horse Cove.			1.54	1 00	5	
Do.			1.04	0 30	12	
Lumberton.	4.47	16				
Mount Airy.	2.55	14				
Saxon.	3.10	28				
Smithfield.	10.12	3.75	7			
Do.	2.60	16				
Southern Pines.	3.20	7				
Southport.	3.72	7-8				
Tarboro.	3.35	6-7				
Willeyton.	2.50	7				
<i>North Dakota.</i>						
Church Ferry.	2.53	30				
Dawson.	2.50	1				
Ellendale.			2.00	0 30	26	
Napoleon.			1.45	0 30	28	
Power.	2.75	28-29	2.66	2 00	28	
<i>Ohio.</i>						
Granville.	3.26	3-4				
New Holland.	2.78	4				
Warren.	2.56	16				
West Milton.			2.25	1 00	4	
<i>Pennsylvania.</i>						
Forks of Neshaminy.			1.44	0 55	22	
Kennott Square.			1.25	0 17	22	
Smiths Corners.	2.65	22				
<i>South Carolina.</i>						
Allendale.	2.60	2	2.60	2 15	2	
Batesburg.	12.05	4-40	2-3			
Do.	2.95	14	2.95	3 00	14	
Brewer Mine.	2.78	1-2				
Charleston.	16.50	5.79	7-8			
Do.	4.40					

Table of excessive precipitation—Continued.

State and station.	Monthly rainfall 10 inches, or more.	Rainfall 2.50 inches, or more, in 24 hours.		Rainfall 1 inch, or more, in one hour.	
		Amt.	Day.	Amt.	Time.
Tennessee—Continued.					
Charleston	Inches.	Inches.		Inches.	h. m.
Chattanooga	3.41	5-6	1.48	0 55	5
Clarksville	3.04	5-6	2.89	4-5	
Clinton	3.30	5-6	2.80	1	
Columbia	2.96	1	2.73	*	
Johnsonville	2.73	*	2.70	5-6	
Nashville	3.00	*	2.69	5-6	
Pikeville	2.57	5	2.57	5	
Riddleton					
Rockwood					
Rugby					
Texas.					
Albany				1.06	1 00
Galveston				1.06	1 00
Do.				1.15	1 05
Do.				1.10	0 32
Graham	3.08	1-2			
Huntsville	4.10	18			
Orange	2.64	5-6			
Virginia.					
Birdsnest	4.80	16-17			
Cape Charles	5.70	16-17			
Cape Henry	5.00	16-17			
Hampton	3.92	16			
Irwin	3.03	1-2			
Norfolk	5.97	16-17			
Standardsville				1.46	1 00
Tatoosh Island				2.55	9-10
West Virginia.					
Glenville				1.40	1 00
Hinton				2.53	5-6
Milwaukee					1.60
					1 30
					20

* May 31st-June 1st.

MAXIMUM RAINFALL IN ONE HOUR OR LESS.

The following table is a record of the heaviest rainfall during June, 1893, for periods of five and ten minutes and one hour, as reported by regular stations of the Weather Bureau furnished with self-registering gauges:

Maximum rainfall in one hour or less.

Station.	Maximum fall in—					
	5 min.	Date.	10 min.	Date.	1 hour.	Date.
Atlanta, Ga.	Inch.		Inch.		Inch.	
Bismarck, N. Dak.	0.20	3	0.35	3	0.93	2
Boston, Mass.	0.20	29	0.25	29	0.58	29
Buffalo, N. Y.	0.04	22	0.07	22	0.15	22
Cincinnati, Ohio	0.10	2	0.13	2	0.15	2
Chicago, Ill.	0.30	22	0.55	22	0.80	22
Cleveland, Ohio	0.35	20	0.45	20	0.80	10
Denver, Colo.†	0.18	4	0.25	4	0.32	4
Detroit, Mich.	0.32	3	0.55	3	1.80	3
Dodge City, Kans.	0.06	25	0.11	25	0.30	25
Duluth, Minn.	0.10	21	0.20	21	0.30	21
Eastport, Me.	0.02	17	0.04	17	0.15	17
Galveston, Tex.	0.38	19	0.58	19	1.10	19
Indianapolis, Ind.	0.45	20	0.56	20	0.58	21
Jacksonville, Fla.	0.35	15	0.55	15	0.65	30
Jupiter, Fla.	0.35	30	0.70	30	2.20	30
Kansas City, Mo.	0.25	21	0.42	23	1.05	21
Key West, Fla.	0.30	13	0.43	13	0.53	13
Marquette, Mich.	0.07	24	0.12	24	0.20	24
Memphis, Tenn.	0.20	19	0.30	2	0.40	2
Milwaukee, Wis.	0.25	4	0.25	4	1.00	20
New Orleans, La.*	0.30	6	0.47	6	0.66	6
New York, N. Y.	0.60	6	0.82	6	0.90	6
Norfolk, Va.†	0.20	6	0.30	6	0.66	16, 17
Omaha, Nebr.†	0.20	3	0.40	3	4.55	3
Philadelphia, Pa.	0.20	22	0.31	22	0.57	22
Pittsburg, Pa.†						
Portland, Oregon	0.01	10	0.02	10	0.08	10
Saint Louis, Mo.	0.15	12	0.21	12	0.42	12
Saint Paul, Minn.	0.26	21	0.39	21	0.68	21
Salt Lake City, Utah†						
San Diego, Calif.						
San Francisco, Cal.†						
Savannah, Ga.	0.29	7, 22	0.48	7	0.88	7
Tampa, Fla.	0.40	8	0.70	5	1.25	8
Washington, D. C.	0.22	26	0.30	26	0.52	26
Wilmington, N. C.	0.25	7, 14	0.46	7	0.67	7

* Record incomplete. † Self-register out of order. ‡ Less than 0.05 in 1 hour.

The following tables show the number of years for which monthly precipitation to equal or exceed 10.00 inches, daily

precipitation to equal or exceed 2.50 inches, and hourly precipitation to equal or exceed 1.00 inch has been reported in the several states and territories for June during the last 23 years:

Excessive monthly precipitation.

State.	No. years noted.	State.	No. years noted.
Florida	17	New Jersey	2
Iowa	16	Virginia	2
Texas	13	Maryland	2
Georgia	13	Vermont	2
Louisiana	13	Colorado	1
Missouri	11	Connecticut	1
Illinois	9	Rhode Island	1
Nebraska	9	Washington	1
Kansas	9	Arkansas	1
North Carolina	9	Arizona	0
Alabama	8	Delaware	0
Indiana	8	District of Columbia	0
South Carolina	8	Idaho	0
Minnesota	7	Kentucky	0
New Hampshire	6	Maine	0
Ohio	5	Massachusetts	0
Tennessee	5	Montana	0
New York	5	Nevada	0
Wisconsin	5	New Mexico	0
Michigan	4	California	0
Pennsylvania	4	Oregon	0
Mississippi	3	Utah	0
The Dakotas	3	West Virginia	0
Minnesota	2	Wyoming	0
New Hampshire	2		

Excessive daily precipitation (24 hours).

Texas	20	Arkansas	30
Florida	19	Connecticut	8
Illinois	19	New Jersey	7
Kansas	18	Indian Territory	6
Iowa	17	Kentucky	5
Missouri	17	Maine	5
Georgia	15	Wisconsin	5
Nebraska	15	Vermont	4
The Dakotas	15	West Virginia	4
Minnesota	14	Montana	3
New York	14	New Hampshire	3
Michigan	13	Colorado	2
Pennsylvania	13	Delaware	2
Tennessee	13	Rhode Island	2
South Carolina	13	Idaho	1
Indiana	12	Wyoming	1
Maryland	11	Arizona	1
Alabama	11	District of Columbia	0
Louisiana	11	Nevada	0
Mississippi	11	California	0
Oregon	11	Rhode Island	0
Virginia	10	Utah	0
Utah	5	Washington	0

Excessive hourly precipitation.

Kansas	18	New Jersey	5
Texas	17	Kentucky	3
Georgia	15	Maryland	3
Iowa	15	Connecticut	3
Florida	14	West Virginia	3
Illinois	14	Colorado	2
Michigan	14	Maine	2
Nebraska	13	Massachusetts	2
Tennessee	12	New Mexico	2
Missouri	11	Indian Territory	2
North Carolina	11	New Hampshire	2
Pennsylvania	11	Wyoming	2
The Dakotas	11	Arizona	1
Ohio	10	Idaho	1
Louisiana	9	Montana	1
Minnesota	9	Vermont	1
South Carolina	9	Delaware	0
Indiana	8	District of Columbia	0
Arkansas	7	Nevada	0
Mississippi	7	California	0
New York	7	Rhode Island	0
Wisconsin	7	Oregon	0
Washington	7	Utah	0
Wisconsin	7	Alabama	0

The following tables give exceptionally heavy monthly, daily, and hourly precipitation reported for June during the last 23 years:

Monthly.

Station and state.	Am't.	Year.	Station and state.	Am't.	Year.
	Inches.			Inches.	
Alexandria, La.	36.01	1886	Hypoluxo, Fla.	23.25	1892
Cheneyville, La.	26.59	1886	Sylvan Park, Mo.	21.86	1872
California, Mo.	23.90	1891	Archer, Fla.	20.19	1892

Daily (24 hours).

Station and state.	Amount.	Date.	Station and state.	Amount.	Date.
Alexandria, La.	22.27	16, 1893	Plattsmouth, Nebr.	.56	13-14, 1874
Point Pleasant, La.	16.55	13-14, 1878	Greenboro, N. C.	.56	17, 1876
Pensacola, Fla.	10.70	20, 1892	Cameron, La.	.57	22, 1892
Sour Lake, Tex.	9.70	18, 1888	Crowley, La.	.59	6, 1889
Memphis, Tenn.	9.67	8-9, 1877	Plattsmouth, Nebr.	.53	8-9, 1874
Orange, Tex.	9.55	22-24, 1892	Hardeeville, S. C.	.50	9, 1883
Memphis, Tenn.	9.55	7-8, 1877	Evergreen, Ala.	.59	27, 1888
Clear Lake, Nebr.	8.75	1, 1875	Rockford, Iowa	.50	23, 1875
Mobile, Ala.	8.50	26-27, 1888	New Orleans, La.	.47	29-30, 1887
Lebo, Kans.	8.23	26, 1893	Traverse, S. Dak.	.40	5-6, 1892
Readington, N. J.	8.10	25-26, 1884	Caldwell, N. Y.	.40	25-26, 1884
Cunningham, Kans.	8.00	19-20, 1890	Aberdeen, Miss.	.40	21, 1886
Syracuse, N. Y.	8.00	8, 1876	Corry, Pa.	.36	4, 1892
Nashua, Iowa	7.50	14, 1880	Jeanerette, La.	.35	16, 1892
Weisboro, Pa.	7.45	*1889	Boston, Mass.	.35	9-10, 1875
Little Rock, Ark.	7.40	26, 1879	Sycamore, Ill.	.33	22-23, 1892
Colebrook, Conn.	7.40	7-8, 1874	Fort Adams, R. I.	.30	9-10, 1875
Salisbury, N. C.	7.39	10, 1883	Fort Maginnis, Mont.	.28	20-21, 1888
Purdy, Tenn.	7.10	14-15, 1876	Galveston, Tex.	.27	23-24, 1880
Salisbury, N. C.	7.10	25, 1885	Merritts Island, Fla.	.27	23, 1889
Wilmington, N. C.	7.03	30, 1876	Saint Marks, Fla.	.24	9, 1879
Darien, Ga.	7.00	13, 1893	Wilmington, N. C.	.22	2, 1882
Columbia, Tex.	7.00	17, 1888	Fort Clark, Tex.	.20	18-19, 1877
Marmaton, Kans.	6.60	15-16, 1889	Franklin, La.	.20	27, 1892
New Ulm, Tex.	6.50	17-18, 1888	Marquette, Mich.	.20	20-21, 1878
Fort Scott, Kans.	6.45	15-16, 1889	Mascoutah, Ill.	.20	18, 1892
Galveston, Tex.	6.40	17, 1886	Yankton, S. Dak.	.20	30, 1875
Archer, Fla.	6.34	27, 1892	Carthagena, Ohio	.18	20, 1876
Emilie, La.	6.32	23-23, 1890	Raleigh, N. C.	.18	28-29, 1889
Alexandria, La.	6.31	15, 1886	Des Moines, Iowa	.14	19-20, 1881
Saint Marys, Ga.	6.20	13-13, 1877	Jacksonville, Fla.	.12	10-11, 1885
Charleston, S. C.	6.16	11-12, 1876	Savannah, Ga.	.12	14-15, 1876
Savannah, Ga.	6.10	26-27, 1887	Melissa, Tex.	.10	26, 1878
Cleburne, Tex.	6.04	2, 1884	Helena, Ark.	.10	8, 1877
Columbia, Tex.	6.00	7-8, 1890	Fort Randall, S. Dak.	.10	30, 1875
Logan, Iowa	6.00	29-30, 1878	Cadiz, Wis.	.07	13-14, 1890
Larned, Kans.	6.00	19, 1878	Bellefontaine, Ohio	.06	5-6, 1877
Norfolk, Va.	5.97	16-17, 1893	Fayette, Iowa	.04	3-4, 1890
Block Island, R. I.	5.97	9-10, 1881	Minden, La.	.03	23, 1893
New London, Conn.	5.97	25-26, 1884	Omaha, Nebr.	.03	17, 1875
Chenyeville, La.	5.90	10, 1889	Monroe, La.	.01	5-6, 1890
Cameron, La.	5.89	17-18, 1892	Beardstown, Ill.	.00	21, 1885
Edgar, La.	5.85	23, 1890	Grand Meadow, Minn.	.00	15, 1894
Mattoon, Ill.	5.85	27, 1888	Marengo, Ind.	.00	18, 1890
Charleston, S. C.	5.79	7-8, 1893	Tannersville, N. Y.	.00	26-27, 1889
Kingman, Kans.	5.75	19, 1890	Sandwich, Ill.	.00	8, 1874
Somerset, Mass.	5.74	9-10, 1875	Danville, Ky.	.00	17, 1878
Cape Charles, Va.	5.70	16-17, 1893	Burlington, Kans.	.00	13, 1876
Hazelhurst, Miss.	5.67	5, 1893	Ft. Independence, Mass.	.00	10, 1875
Helena, Ark.	5.60	9, 1877	Cape Henry, Va.	.00	16-17, 1893

* May 31st-June 1st.

One hour and less.

Station and state.	Amount.	Time.	Date.
New York, N. Y.	.60	0 05	6, 1893
Cleveland, Ohio	.47	0 05	3, 1891
Indianapolis, Ind.	.45	0 05	20, 1893
Tampa, Fla.	.40	0 05	8, 1893
Bismarck, N. Dak.	.40	0 05	19, 1890
Savannah, Ga.	.40	0 05	9, 1889
Do.	.40	0 05	27, 1889
Jupiter, Fla.	.40	0 05	19, 1891
Jacksonville, Fla.	.35	0 05	15, 1893
Galveston, Tex.	.35	0 05	19, 1893
Augusta, Ga.	.35	0 05	27, 1888
Jupiter, Fla.	.35	0 05	30, 1893
Chicago, Ill.	.35	0 05	20, 1893
Galveston, Tex.	.35	0 05	7, 1890
New York, N. Y.	.35	0 05	6, 1890
New Orleans, La.	.35	0 05	22, 1890
Savannah, Ga.	.35	0 05	11, 1890
Galveston, Tex.	.35	0 05	29, 1891
Kansas City, Mo.	.35	0 05	16, 1891
Detroit, Mich.	.32	0 05	3, 1893
Cleveland, Ohio	.30	0 05	10, 1891
Norfolk, Va.	.30	0 05	13, 1890
Bismarck, N. Dak.	.30	0 05	14, 1891
Key West, Fla.	.30	0 05	13, 1893
New Orleans, La.	.30	0 05	6, 1893
Cincinnati, Ohio	.30	0 05	22, 1893
Washington, D. C.	.30	0 05	21, 1891
Wilmington, N. C.	.30	0 05	8, 1891
Detroit, Mich.	.29	0 05	16, 1889
Do.	.29	0 05	22, 1891
Savannah, Ga.	.29	0 05	7, 1893
Do.	.28	0 05	22, 1893
Detroit, Mich.	.26	0 05	28, 1890
Saint Paul, Minn.	.26	0 05	23, 1890
Saint Louis, Mo.	.26	0 05	31, 1893
New York, N. Y.	.25	0 05	17, 1889
Jupiter, Fla.	.25	0 05	3, 1890
Kansas City, Mo.	.25	0 05	21, 1893
Milwaukee, Wis.	.25	0 05	4, 1893
Wilmington, N. C.	.25	0 05	7, 1893
Do.	.25	0 05	14, 1893
Marquette, Mich.	.25	0 05	27, 1890

One hour and less--Continued.

Station and state.	Amount.	Time.	Date.
Saint Louis, Mo.	.25	0 05	17, 1890
Washington, D. C.	.25	0 05	12, 1890
Cincinnati, Ohio.	.25	0 05	3, 1891
Dodge City, Kans.	.25	0 05	5, 1891
Eastport, Me.	.25	0 05	13, 1889
Jupiter, Fla.	.25	0 05	16, 1891
Memphis, Tenn.	.25	0 05	29, 1891
Do.	.25	0 05	6, 1893
Saint Louis, Mo.	.25	0 10	30, 1893
New York, N. Y.	.70	0 10	8, 1893
Tampa, Fla.	.70	0 10	7, 1890
Galveston, Tex.	.70	0 10	22, 1890
New Orleans, La.	.65	0 10	27, 1889
Savannah, Ga.	.61	0 10	19, 1890
Bismarck, N. Dak.	.61	0 10	3, 1891
Cleveland, Ohio.	.61	0 10	18, 1891
Norfolk, Va.	.60	0 10	18, 1890
Galveston, Tex.	.58	0 10	19, 1893
Indianapolis, Ind.	.56	0 10	20, 1893
Cleveland, Ohio.	.55	0 10	10, 1890
New York, N. Y.	.55	0 10	6, 1890
Cincinnati, Ohio.	.55	0 10	22, 1893
Detroit, Mich.	.55	0 10	3, 1893
Jacksonville, Fla.	.55	0 10	14, 1891
Savannah, Ga.	.55	0 10	11, 1891
Bismarck, N. Dak.	.55	0 10	14, 1891
Toledo, Ohio.	.50	0 10	13, 1888
Memphis, Tenn.	.60	0 11	20, 1888
Anas, Ill.	1.19	0 13	20, 1878
Fort Randall, S. Dak.	1.50	0 15	28, 1873
Southington, Conn.	1.45	0 15	29, 1879
Steelville, Mo.	1.33	0 15	13, 1893
Gratiot, Ohio.	1.22	0 16	9, 1892
Kennett Square, Pa.	1.25	0 17	22, 1893
Ozark, Ark.	0.95	0 17	14, 1893
Clarinda, Iowa.	1.75	0 20	20, 1889
Alapaha, Ga.	1.70	0 20	26, 1890
Potosi, Wis.	1.50	0 20	14, 1890
Webster, S. Dak.	1.33	0 20	24, 1884
Humansville, Mo.	1.25	0 20	20, 1893
Herrins Prairie, Ill.	1.20	0 20	4, 1893
Lynchburg, Va.	1.02	0 20	15, 1879
Sheldon, Minn.	1.35	0 22	18, 1890
Do.	2.07	0 25	23, 1890
Clear Creek, Mont.	2.00	0 25	13, 1879
Lonoke, Ark.	2.35	0 30	30, 1893
Denmark, Iowa.	2.02	0 30	25, 1879
Boston, Mass.	2.00	0 30	29, 1879
Alpena, Mich.	2.00	0 30	24, 1889
Ellendale, N. Dak.	2.00	0 30	26, 1893
Statesville, N. C. (near)	2.00	0 30	17, 1876
Galveston, Tex.	2.00	0 30	17, 1888
Keswick, Va.	2.00	0 30	3, 1881
Diamond, Ga.	2.00	0 30	21, 1889
Columbus, Ga.	1.90	0 30	28, 1893
Sandusky, Ohio.	1.90	0 30	17, 1881
Missoula, Mont.	1.84	0 30	13, 1875
Batesville, Miss.	1.72	0 30	24, 1892
Louisville, Miss.	1.59	0 30	17, 1889
Brooksville, Fla.	1.57	0 30	21, 1893
Newton, Iowa.	1.55	0 30	26, 1881
Carrington, N. Dak.	1.50	0 30	14, 1892
Canton, Pa.	1.50	0 30	27, 1892
Larrabee, Iowa.	1.50	0 30	19, 1892
Jacksonville, Fla.	1.50	0 31	20, 1892
Charlotte, N. C.	2.05	0 34	30, 1889
North Lewisburg, Ohio.	1.60	0 35	27, 1879
Palestine, Tex.	1.60	0 35	3, 1883
East Peoria, Ill.	2.05	0 40	13, 1893
Oxanna, Ala.	2.00	0 40	25, 1892
Uniontown, Pa.	2.35	0 40	4, 1892
La Crosse, Wis.	1.37	0 40	21, 1884
Wytheville, Va.	2.70	0 44	25, 1875
Dodge City, Kans.	3.24	0 45	19, 1888
Amana, Iowa.	3.17	0 45	19, 1878
Charleston, S. C.	2.61	0 50	7, 1893
Wellsboro, Pa.	2.60	0 50	19, 1882
Cumberland, Md. a.	4.04	1 00	4, 1892
Des Moines, Iowa.	3.00	1 00	24, 1879
Merritts Island, Fla.	3.00	1 00	23, 1889

MONTHLY SNOWFALL (in inches and tenths).

Monthly snowfall was reported as follows: Colorado.—Pikes Peak, 7.7; Sunnyside, 4; Red Cliff, 2.4; Breckenridge, 2.2; Gold

and West Virginia. 3d, Colorado, Kansas, Michigan, and Nebraska. 4th, Arkansas, Kansas, Nebraska, Texas, Virginia, and Wyoming. 5th, Wyoming. 6th, Minnesota. 7th, Minnesota and New Mexico. 8th, Minnesota and North Dakota. 9th, Illinois, Minnesota, and Nebraska. 10th, Iowa, Missouri, and Washington. 11th, New Hampshire, New Mexico, New York, Oregon, Pennsylvania, and Vermont. 12th, Illinois, New Mexico, North Carolina, Oregon, South Carolina, Tennessee, and Wisconsin.

13th, Alabama, Florida, Missouri, Montana, Nevada, North Carolina, South Carolina, Tennessee, Washington, and Wisconsin. 14th, Colorado, Illinois, Iowa, Kansas, Minnesota, Mississippi, North Dakota, Ohio, South Carolina, South Dakota, Tennessee, Wisconsin, and Wyoming. 15th, Kansas, Michigan, Ohio, Pennsylvania, and Texas. 16th, Indiana, Michigan, Ohio, Texas, and Wisconsin. 17th, Arkansas, Georgia, and Ohio. 18th, Maine, New Mexico, North Dakota, Oregon, South Carolina, and Washington. 19th, Georgia and Oregon. 20th, Indiana, Louisiana, Minnesota, and South

Dakota. 21st, Indiana, Iowa, Kansas, Michigan, Minnesota, Missouri, Nebraska, North Carolina, and Wisconsin. 22d, Georgia, Iowa, New York, North Carolina, South Carolina, and Virginia.

23d, Florida, Iowa, Kansas, Michigan, and Minnesota. 24th, Michigan, Ohio, and South Dakota. 25th, Alabama, Colorado, Illinois, Indiana, Kansas, Michigan, Missouri, Nebraska, Ohio, Oklahoma, Pennsylvania, and South Dakota. 26th, Colorado, Illinois, Indiana, Nebraska, North Carolina, North Dakota, Ohio, Oklahoma, South Dakota, Tennessee, Utah, and Virginia. 27th, Arkansas, Florida, Kansas, Montana, Nebraska, New York, and Pennsylvania. 28th, Alabama, Colorado, Georgia, Indiana, Kansas, Nebraska, North Carolina, North Dakota, Ohio, South Dakota, Virginia, West Virginia, and Wyoming. 29th, Colorado, Kentucky, Minnesota, Nebraska, North Dakota, South Dakota, Virginia, West Virginia, and Wyoming. 30th, Arkansas, Colorado, Connecticut, Indiana, Kansas, Minnesota, Missouri, Nebraska, New Hampshire, New York, and South Dakota.

WINDS.

The prevailing winds in June, 1893, are shown on Chart II by arrows flying with the wind.

In the New England and south Atlantic states, the Ohio Valley, and the Lake region the winds were generally from southeast to southwest; in the middle Atlantic states, from north to east; over the Florida Peninsula, from the southeast; in the west Gulf states, the upper Mississippi and Missouri valleys, and on the southeast slope of the Rocky Mountains, from southeast to south; on the northeast slope of the Rocky Mountains, and on the middle Pacific coast, from southwest to northwest; on the middle-eastern slope of the Rocky Mountains, from east to south; over the northern plateau region, and on the north Pacific coast, from south to west; and in the east Gulf states, Tennessee, the Red River of the North Valley, and the southern and middle plateau regions, variable.

HIGH WINDS.

(In miles per hour.)

Wind velocities of 50 miles, or more, per hour were reported at regular stations of the Weather Bureau as follows:

6th, 51, s., at Fort Canby, Wash. 7th, 59, s., at Huron, S. Dak. 9th, 58, s., at Fort Canby, Wash. 10th, 60, s., at Fort Canby, Wash. 11th, 56, sw., at Buffalo, N. Y. 13th, 86, sw., at Pikes Peak, Colo. 14th, 59, s., at Fort Canby, Wash.; 56, s., at Amarillo, Tex. 16th, 55, s., at Southport, N. C.; 54, e., at Charleston, S. C. 21st, 50, nw., at Saint Louis, Mo.; 50, w., at Red Wing, Minn. 22d, 60, w., at Fort Hill, S. C.; 56, s., at Carson City, Nev. 23d, 56, w., at Fort Buford, N. Dak.; 50, se., at Huron, S. Dak. 26th, 60, nw., at Colorado Springs, Colo.; 54, e., at Pueblo, Colo. 29th, 50, w., at Amarillo, Tex. 30th, 54, n., at Little Rock, Ark.

LOCAL STORMS.

(75th meridian time is used at regular Weather Bureau stations.)

1st.—Very heavy rain fell in South Carolina, Georgia, Alabama, Tennessee, and Ohio, and thunderstorms were reported in South Carolina, Ohio, and Michigan. At Columbia, S. C., 2.12 inches of rain fell the night of the 1st. A severe thunderstorm occurred at Longshore, S. C. Exceptionally heavy rain, high wind, and hail were reported at Hephzibah, Ga. Crops on low ground about Newburg, Ala., were damaged by heavy rain. A wind and hail storm at night caused considerable damage near Weatherford, Tex. At Nashville, Tenn., heavy rain, with thunder and high wind, continued during the afternoon and at night; many bridges

were washed away, and much damage was caused to crops on low land. In Noble and Huntington counties, Indiana, a number of buildings were destroyed by high wind. Violent thunderstorms occurred over a large area of Lower Michigan in the evening, causing damage of a minor character.

2d.—Heavy thunderstorms were reported in Georgia, Tennessee, Nebraska, and North Dakota, and severe local storms occurred in Texas. A destructive local storm passed through the southeastern part of Lavaca County, Tex., destroying everything in a path about one-half mile in width and 6 to 8 miles in length. A heavy thunder, rain, and wind storm visited San Antonio, Tex., in the morning. A large waterspout passed over the upper portion of Rio Grande City, Tex. A tornado moved east near Spanish Camp, Tex., between 3 and 4 p. m. The path of the storm was about 50 yards in width. Two persons were killed, and the damage to buildings was placed at \$700.

3d.—Severe thunderstorms were reported in Western New York, the Ohio Valley, Michigan, and Nebraska. At Detroit, Mich., streets and cellars were flooded by heavy rain. A heavy hailstorm of short duration was reported at Hays City, Kans. Damage by high wind and heavy rain was reported at Minneapolis, Kans. Hail caused considerable damage about David City, Nebr. At Omaha, Nebr., several houses were struck by lightning, and damage resulted from heavy rain. A severe thunder, rain, and hail storm moved southeast over Kearney, Nebr., in the afternoon.

4th.—Severe thunderstorms occurred in Maryland, Florida, the Ohio Valley and Tennessee, Missouri, Kansas, Arkansas, and Texas. Several houses were struck by lightning at Knoxville, Tenn. About 1 p. m. a severe thunder and rain storm moved north of east over Saint Louis, Mo., in a path 300 to 500 feet in width and about one-half mile in length, injuring 2 persons and causing considerable damage of a minor character. Near Fort Smith, Ark., a man was killed by lightning.

5th.—Thunderstorms, with heavy rain, occurred in southern New England, eastern New York, and New Jersey. Several buildings were struck by lightning.

7th.—A violent local storm was reported in the afternoon at Morris Island and adjacent islands southeast of Charleston, S. C. At Charleston the rainfall was exceptionally heavy, and a waterspout was observed north-northeast of that station. A severe thunderstorm occurred at Tampa, Fla., in the early morning.

9th.—During a heavy thunderstorm at Chicago, Ill., in the evening, damage was caused by hail, and fire, caused by lightning, destroyed property to the value of \$25,000. A severe thunderstorm visited Omaha, Nebr., in the evening.

10th.—Thunderstorms occurred in northern Illinois and Lower Michigan, and severe wind, rain, and hail storms visited Iowa. Near Kalamazoo, Mich., a man was killed by lightning. Damage by high wind was reported in Harrison and Crawford counties, Iowa. Exceptionally heavy rain caused considerable damage about Dubuque, Iowa.

11th.—Severe thunderstorms occurred in New York. At Albany a church was struck by lightning and damage was caused by wind. Some damage was caused by lightning and hail at Turin, N. Y. A severe southwest gale prevailed at Buffalo, N. Y., in the morning.

12th.—Heavy thunderstorms were reported in eastern New York, the Carolinas, Tennessee, and Missouri. A destructive hail and rain storm moved east over Burgaw, about 25 miles north of Wilmington, N. C., about 4 p. m. Heavy hail was also reported northwest and west of Wilmington. Thunder and hail storms caused some damage about Fort Hill, S. C. A thunderstorm, with heavy rain, occurred at Chattanooga, Tenn., in the afternoon. A heavy hailstorm was reported northeast of Chattanooga. The path of the hail-storm was about 3 miles in length and one-half mile in width. Crops were damaged by hail near Golconda, Ill. A severe thunderstorm occurred at Saint Louis, Mo., in the afternoon.

13th.—Hail damaged crops about Newnan, Ga. At Genoa, Ill., a residence was struck by lightning. Damage by hail was reported at Hillsboro, Wis. Heavy rain caused damage about Palmyra, Mo. At night damage of a minor character was caused by lightning at Rapid City, S. Dak.

14th.—Destructive hailstorms occurred in Illinois, and thunderstorms were reported in Wisconsin, Missouri, the Missouri Valley, and Wyoming. Hail caused great damage to crops about Wayland, Ill. Damage by hail and wind was reported at Lancaster, Wis.

15th.—Thunderstorms were reported in Lower Michigan, Ohio, Iowa, and Florida. A severe thunder and hail storm visited Ann Arbor, Mich. At Hastings, Mich., two persons were struck by lightning. In Ohio several buildings were struck by lightning, and damage was caused by hail. A man was killed by lightning near Newton, Iowa. A heavy rain and wind storm prevailed over the east Gulf and along the south Atlantic and Florida coasts, causing considerable damage to crops. At Jacksonville, Fla., a thunderstorm about noon was followed by high wind and heavy rain. At Tampa, Fla., the wind reached a velocity of 36 miles per hour from the south at noon, and wharves along the bay and river front were submerged.

16th.—Heavy rain and high winds prevailed along the middle Atlantic and Carolina coasts. At Eden Center, N. Y., a house was struck and one person was killed by lightning. High wind caused some damage along the New Jersey coast, and exceptionally heavy rain and high winds occurred along the Virginia coast. At Wilmington, N. C., the maximum wind velocity was 36 miles per hour from the southeast. A severe thunderstorm visited Corpus Christi, Tex., in the afternoon. A destructive local storm was reported at Laredo, Tex., in the morning. Heavy thunderstorms were noted in Ohio and Lower Michigan.

17th.—A man was killed by lightning near Holly Springs, Miss.

18th.—Destructive hailstorms were reported at Mattawamkeag, Me., and Gallinas Spring, N. Mex.

19th.—A severe hailstorm occurred near Marietta, Ga. At Saint Louis, Mo., a thunderstorm from the southeast began 5.18 and ended 7.15 p. m. In the suburbs the storm was very severe; trees 6 to 8 inches in diameter were broken off, a horse

was killed by lightning, and a house was struck by lightning and burned.

20th.—A house was struck by lightning at Little Rock, Ark. Stock was killed by lightning at Springfield, Ill., and Kokomo, Ind. A heavy hailstorm was reported south of Webster, S. Dak.

21st.—Heavy thunderstorms occurred in Florida, Kentucky, Lower Michigan, Wisconsin, and Minnesota, and severe local storms were reported in Iowa, Missouri, and Kansas. At Manatee, Fla., a house was struck by lightning. A building was struck by lightning at Tampa, Fla. Between 4.30 and 5 p. m. a heavy thunder, rain, and hail storm moved northeast south of Adair, Iowa. The path of the storm was 200 to 400 yards in width. Buildings valued at \$6,000 to \$7,000 were destroyed. A thunderstorm, with heavy rain, moved southeast over Anita, Iowa, between 5 and 6 p. m. A windstorm visited Clinton, Iowa, from 7.30 to 9 p. m. A severe thunderstorm moved southeast over Conception, Mo., about 4.30 p. m., destroying small buildings and killing three persons. Estimated value of property destroyed at Conception, \$30,000. Damage was caused by high wind, hail, and heavy rain about New Palestine, Akron, Miami, New Boston, Rea, and Sublette, Mo. At 6.30 p. m. a tornado moved northeast in a path about 200 yards in width and over four miles in length near Williamstown and Perry, Kans., killing 10 persons, and destroying property valued at \$20,000. Heavy rain fell before and heavy thunder followed the passage of the storm. A severe thunder, rain, and hail storm moved south over Winfield, Kans., about 8 p. m., destroying property to the estimated value of \$25,000.

22d.—Thunderstorms, with heavy rain, occurred in the middle and south Atlantic and south New England states and the Ohio Valley. In parts of Virginia, the Carolinas, and Georgia the storms were attended by hail. At Dallas, Ga., a thunder, rain, and hail storm moved east at 2.30 p. m., unroofing 12 buildings. Near Parkersburg, W. Va., a man was killed by lightning.

23d.—Local storms occurred in Kansas and western Iowa. At Concordia, Kans., exceptionally large hail fell in the late afternoon. The larger stones measured 13 to 16 inches in circumference. Hail damaged corn and small grain in the northwest part of Guthrie County, Iowa. A severe thunderstorm occurred at Columbia, Mo., at night.

25th.—Thunderstorms occurred in Pennsylvania, the Ohio Valley and Tennessee, and Missouri. Fruit was damaged by hail about Erie, Pa. Hailstorms were also reported at Edinboro and Grampian, Pa. Destructive hailstorms were reported at Warren and Colebrook, Ohio. Hail was also reported at Steffenville and Gainesville, Mo.

26th.—In the early morning several houses in Atlanta, Ga., were struck by lightning. A thunderstorm and cloud-burst occurred at Lebo, Kans., between 12.40 and 3.50 p. m. 8.23 inches of rain fell, flooding fields. A severe thunder and hail storm was reported at Kennedy, Nebr. In the evening the wind reached a velocity of 60 miles per hour from the northwest at Colorado Springs, Colo.

27th.—Thunder and hail storms occurred in Florida. A severe thunder and wind storm passed about 12 miles southwest of Beaver City, Nebr.

28th.—Destructive thunder and hail storms were reported in Virginia, West Virginia, North Carolina, Ohio, North Dakota, and Nebraska.

29th.—Hailstorms were reported in Virginia, Kentucky, Colorado, and Wyoming, and thunderstorms occurred in Florida, Minnesota, and Nebraska. At Pensacola, Fla., a house was struck by lightning. A man was killed by lightning near Willmar, Minn. Hail damaged crops about Table Rock, Colo., and Sheridan, Wyo.

30th.—Thunderstorms occurred in New England, and

hailstorms in Connecticut and New Hampshire. At South Weathersfield, Conn., a severe hailstorm occurred about 3 p. m. Some damage by hail was reported at Littleton, N. H. A boy was killed by lightning near Gloversville, N. Y. A heavy thunder and rain storm occurred at Jupiter, Fla., in

the afternoon. During a thunderstorm in the evening at Little Rock, Ark., the wind reached a velocity of 54 miles per hour. A severe thunder, rain, and hail storm visited Concordia, Kans., in the morning. Thunderstorms were reported in Missouri and South Dakota.

INLAND NAVIGATION.

FLOODS.

The month opened with the Mississippi River above the danger-line from Helena, Ark., southward. At Vicksburg, Miss., the stage of water, 46.7 feet, was the highest noted for the month. At Nashville, Tenn., the Tennessee River rose rapidly and reached 19.4 feet on the gauge, a rise of 9.1 feet in 24 hours. At Cairo, Ill., the Ohio River was rising slowly and passed the danger-line by the morning of the 2d. The Ohio River continued to rise at Cairo until the 6th, when a stage of 43.3 feet, 3.3 feet above the danger-line was reached. The Mississippi River passed the danger-line at Memphis, Tenn., on the 7th, and the maximum stage of the month at that point, 33.5 feet, was noted from the 11th to the 14th. On the 13th a small break occurred in the Magnolia Mound levee near Baton Rouge, La.; the break was closed by the night of the 13th. On the 16th a crevasse was reported near Napoleonville, Assumption Parish, La. The evening of the 18th a break occurred in the levee on the Reserve plantation at Saint Peters, La. The night of the 18th a break occurred in the levee at Convent, La. By the 22d the Reserve crevasse had been closed. The evening of the 23d a serious crevasse occurred in front of the Rescue plantation on the left bank of the river about one mile above Ascension Parish. The Rescue crevasse increased in width during the 24th and 25th, and caused a gradual fall in the river below that point. At New Orleans, La., the water, which reached a stage of 17.9 feet the evening of the 23d and continued nearly stationary until noon of the 24th, fell one foot by the close of the month.

STAGE OF WATER IN RIVERS.

The following table shows the danger-points at the various river stations; the highest and lowest stages for the month, with the dates of occurrence; and the monthly ranges:

Heights of rivers above low-water mark, June, 1893.

Stations.	Danger-point on gauge.	Highest water.		Lowest water.		Monthly range.
		Height.	Date.	Height.	Date.	
<i>Red River.</i>						
Shreveport, La.	29.2	21.8	16-17	14.8	30	7.0
<i>Arkansas River.</i>						
Fort Smith, Ark.	22.0	16.8	2	4.0	27	12.8
Little Rock, Ark.	23.0	21.5	3	7.3	30	14.2
<i>Missouri River.</i>						
Fort Buford, N. Dak.	25.0	16.3	17	10.8	1-3	5.5
Bismarck, N. Dak.	75.0	11.6	18	5.5	4-5	6.1
Pierre, S. Dak.	13.0	7.8	21-26	0.4	12, 13	7.4
Sioux City, Iowa	18.7	14.1	22	9.7	12, 13	4.4
Omaha, Nebr.	18.0	12.9	23, 24	8.9	14, 15	4.0
Kansas City, Mo.	21.0	17.3	26	12.2	19	5.0
<i>Mississippi River.</i>						
Saint Paul, Minn.	14.0	9.5	1	4.4	30	5.1
La Crosse, Wis.	10.0	10.0	1, 2	4.6	30	5.4
Dubuque, Iowa	16.0	12.9	2, 4, 5	6.0	30	6.9
Davenport, Iowa	15.0	10.4	1	4.4	30	6.0
Keokuk, Iowa	14.0	12.2	1	5.5	30	6.7
Hannibal, Mo.	17.0	14.0	1	7.0	30	7.0
Saint Louis, Mo.	30.0	26.0	4	17.6	23	10.4
Cairo, Ill.	40.0	43.3	6	21.0	26	22.3
Memphis, Tenn.	33.0	33.5	11-14	16.5	29	17.0
Vicksburg, Miss.	41.0	40.7	1	42.3	30	4.4
New Orleans, La.	13.0	17.9	24	16.0	4	1.9
<i>Ohio River.</i>						
Parkersburg, W. Va.	35.0	9.5	7	4.6	18	4.9
Cincinnati, Ohio	45.0	21.0	5	20.2	19	10.8
Louisville, Ky.	24.0	10.0	7	5.4	20	4.6
<i>Cumberland River.</i>						
Nashville, Tenn.	40.0	32.0	2	3.8	30	28.2
<i>Tennessee River.</i>						
Chattanooga, Tenn.	33.0	30.7	8	4.1	30	16.6
Knoxville, Tenn.	29.0	-----	-----	-----	-----	-----
<i>Monongahela River.</i>						
Pittsburg, Pa.	22.0	7.1	30	2.2	13	4.9
<i>Savannah River.</i>						
Augusta, Ga.	32.6	13.5	8	6.5	30	7.0
<i>Willamette River.</i>						
Portland, Oregon	15.0	22.0	15	18.0	29, 30	4.0
<i>Susquehanna River.</i>						
Harrisburg, Pa.	17.0	3.7	1, 2	1.6	22, 23	2.1
<i>Alabama River.</i>						
Montgomery, Ala.	48.0	21.3	8	4.2	26	17.1
<i>James River.</i>						
Lynchburg, Va.	18.0	5.5	3, 4	0.7	30	4.8
<i>Sacramento River.</i>						
Red Bluff, Cal.	22.0	4.9	1	2.3	30	3.6
<i>Des Moines River.</i>						
Des Moines, Iowa*	19.0	6.7	12	4.0	30	2.7

* For 29 days.

ATMOSPHERIC ELECTRICITY.

THUNDERSTORMS.

Description of the more severe thunderstorms reported for the month is given under "Local storms."

Thunderstorms were reported as follows: East of the Rocky Mountains they were reported in the greatest number of states, 33, on the 3d and 21st; in 32 on the 4th; in 31 on the 30th; in 20 to 30 on the 1st, 2d, 5th, 6th, 10th to 17th, 19th, 20th, 22d, and 25th to 29th; and in 10 to 19 on the 7th, 8th, 9th, 18th, 23d, and 24th.

East of the Rocky Mountains thunderstorms were reported on the greatest number of dates, 29, in Florida; on 20 to 28 in Colorado, Georgia, Illinois, Iowa, Kansas, Louisiana, Michigan, Missouri, New York, North Carolina, North Dakota, Ohio, Pennsylvania, South Carolina, South Dakota, Tennessee, Texas, Virginia, and West Virginia; and on 10 to 19 in Alabama, Arkansas, Connecticut, Indiana, Kentucky, Maryland,

Massachusetts, Minnesota, Mississippi, Nebraska, New Hampshire, Vermont, and Wisconsin. The only states in which thunderstorms were reported on less than 10 dates were New Jersey on 8 dates, the District of Columbia and Montana on 7, Oklahoma on 6, Rhode Island on 4, and Delaware on 3.

West of the Rocky Mountains thunderstorms were reported in Arizona on the 7th, 8th, 9th, 18th, 24th, 25th, 26th, and 30th; in California on the 21st; in Idaho on the 22d and 27th; in Nevada on the 12th and 13th; in New Mexico on the 7th, 12th, 17th, 18th, and 25th; in Oregon on the 6th, 11th, 21st, 22d, 24th, and 27th; in Utah on the 13th, 25th, and 26th; in Washington on the 3d, 5th, 6th, 10th, 18th, and 24th; and in Wyoming on the 4th, 5th, 14th, and 26th to 29th. There were no states or territories in which thunderstorms were not reported.

AURORAS.

Auroras were reported as follows: 2d, Glenwood, Nebr.

3d, Worcester, Mass.; Valley Junction, Wis. 4th, Addison, N. Y. 5th, Collegeville, Minn.; Hartlandt, Vt. 7th, Winthrop, Mass.; Saint Olaf, Minn.; Berlin Mills, N. H.; Trenton, N. J.; Big Prairie and Dupont, Ohio; Chelsea, Vt.; Raymond, Wis. 8th, Gold Hill, Colo.; Dupont, Ohio; Pepin, Wis. 9th, Falls Village, Conn.; Clear Lake, Minn.; Lancaster, N. H.; Turin, N. Y.; Larimore and Wild Rice, N. Dak.; Dupont, Ohio; Chelsea, Hartlandt, and Woodstock, Vt.; Pepin and Shawano, Wis. 10th, Berlin Mills, N. H.; Turin, N. Y.; Fort Buford, N. Dak.; Shawano, Wis. 11th, Wild Rice, N. Dak. 12th, Big Prairie, Ohio. 14th, Berlin Mills and Bethlehem, N. H.; Turin and Waverly, N. Y.; Big Prairie, Ohio; Chelsea, Vt. 15th, Mayville, N. Dak. 16th, Berlin Mills, N. H. 17th, Clinton, Iowa; Wild Rice,

N. Dak. 18th, Vevay, Ind.; Blue Hill Observatory, Concord, Winthrop, and Worcester, Mass.; Albion, Manistee, and Marquette, Mich.; Fergus Falls, Granite Falls, Saint Cloud, and Saint Olaf, Minn.; Grafton, N. H.; Gloversville, Oswego, Perry City, Turin, and Waverly, N. Y.; Forman, Larimore, Mayville, and Wild Rice, N. Dak.; Kimball and Webster, S. Dak.; Hartlandt, Strafford, and Vernon, Vt.; Ashland, Medford, Raymond, Shawano, Stevens Point, and Westfield, Wis. 19th, Vevay, Ind.; Fergus Falls, Minn.; Turin, N. Y.; Ashland, Medford, Oconomowoc, and Shawano, Wis. 21st, Beloit, Kans. 23d, Degonia Springs, Ind.; Clinton, Iowa; Waverly, N. Y. 26th, Fall River, Mass.; Big Prairie, Ohio. 27th, Big Prairie, Ohio. 29th, Cumberland (a), Md.; Chelsea, Vt.; Berlin Mills, N. H.

STATE WEATHER SERVICES.

[Temperature in degrees Fahrenheit; precipitation, including melted snow, in inches and hundredths.]

The following extracts and summaries are republished from reports for June, 1893, of the directors of the various state weather services:

ALABAMA.

Temperature.—The mean was 1.0 below the normal; maximum, 101, at Brewton, 26th and 27th; minimum, 50, at Healing Springs, 1st and 2d; greatest monthly range, 46, at Healing Springs; least monthly range, 25, at Citronelle and Newbern.

Precipitation.—The average was 0.04 below the normal; greatest monthly, 9.06, at Newburg; least monthly, 2.69, at Thomasville.

Wind.—Prevailing directions, south and southwest.—*P. H. Mell, Observer, Weather Bureau, Auburn, director.*

ARIZONA.

Temperature.—Maximum, 116, at Fort Mohave, 7th; minimum, 89, at Whipple Barracks, 5th and 14th; greatest monthly range, 60, at Buckeye and San Carlos; least monthly range, 30, at Saint Helena Ranch.

Precipitation.—Greatest monthly, 0.29, at Chiricahua Mountains; least monthly, 0.00, at 27 stations.

Wind.—Prevailing direction, southwest.—*W. Burrows, Observer, Weather Bureau, Tucson, director.*

ARKANSAS.

Temperature.—The mean was 0.6 below the normal; maximum, 99, at Hot Springs, 13th and 26th; minimum, 49, at Keesees Ferry, 8th, at Gainesville, Mo., 17th, and at Melbourne, 18th; greatest monthly range, 49, at Hot Springs; least monthly range, 32, at Mount Nebo, Osceola, Prescott, and Greenville, Miss.

Precipitation.—The average was 0.94 above the normal; greatest monthly, 10.24, at Camden; least monthly, 1.14, at Rogers.

Wind.—Prevailing direction, south.—*F. H. Clarke, Local Forecast Official, Weather Bureau, Little Rock, director.*

CALIFORNIA.

Temperature.—The mean was 3.8 below the normal; maximum, 110, at Needles, 6th and 7th; minimum, 25, at Fort Bidwell, 17th; greatest monthly range, 70, at San Ardo.

Precipitation.—The average was 0.28 below the normal; greatest monthly, 0.91, at Crescent City; least monthly, 0.00, over the greater portion of the state.—*J. A. Barwick, Observer, Weather Bureau, Sacramento, director.*

COLORADO.

Temperature.—The mean was 2.0 above the normal; maximum, 106, at Lamar, 23d; minimum, 9, at Pikes Peak, 4th.

Precipitation.—The average was about 0.75 below the normal; greatest monthly, 4.66, at Amherst; least monthly, 0.00, at a number of stations.

Wind.—Prevailing directions, south and west.—*J. J. Gilligan, Observer, Weather Bureau, Denver, director.*

FLORIDA.

Temperature.—Maximum, 104, at Micco, 23d; minimum, 60, at Orlando, 9th, 10th, and 11th; greatest monthly range, 34, at Micco and Orlando; least monthly range, 18, at Key West.

Precipitation.—Greatest monthly, 14.13, at Brooksville; least monthly, 2.32, at Saint Augustine.

Wind.—Prevailing direction, southeast.—*E. R. Demain, Observer, Weather Bureau, Jacksonville, director.*

GEORGIA.

Temperature.—Maximum, 100, at Americus, 12th and 17th, and at Cordele, 8th, 20th, 23d, and 25th; minimum, 52, at Diamond, 11th and 14th; greatest monthly range, 42, at Cordele, Lincolnton, and Thomasville; least monthly range, 22, at West Point.

Precipitation.—Greatest monthly, 13.25, at Darien; least monthly, 2.10, at Morgan.

Wind.—Prevailing direction, south.—*Park Morrill, Local Forecast Official, Weather Bureau, Atlanta, director.*

IDAHO.

Temperature.—Maximum, 97, at Payette, 30th; minimum, 20, at Lake, 5th, 6th, and 7th; greatest monthly range, 70, at Lake; least monthly range, 42, at Moscow.

Precipitation.—Greatest monthly, 0.86, at Delta; least monthly, 0.00, at Martin and American Falls.

Wind.—Prevailing direction, southwest.—*J. H. Smith, Observer, Weather Bureau, Idaho Falls, director.*

ILLINOIS.

Temperature.—The mean was 1.5 above the normal; maximum, 98, at Walnut, 18th; minimum, 42, at Fort Sheridan, 11th.

Precipitation.—The average was 1.38 below the normal; greatest monthly, 7.59, at Cairo; least monthly, 0.80, at Bloomington.

Wind.—Prevailing direction, southwest.—*John Craig, Observer, Weather Bureau, Springfield, director.*

INDIANA.

Temperature.—The mean was normal; maximum, 101, at Ashboro, 19th; minimum, 40, at Valparaiso, 1st and 2d; greatest monthly range, 54, at Union City; least monthly range, 28, at Huntingburg and New Albany.

Precipitation.—The average was 0.80 below the normal; greatest monthly, 7.15, at Huntingburg; least monthly, 0.20, at Valparaiso.

Wind.—Prevailing direction, southwest.—*Prof. H. A. Huston, Lafayette, director; C. F. R. Wappenhans, Local Forecast Official, Weather Bureau, assistant.*

IOWA WEATHER AND CROP SERVICE.

Temperature.—The mean was about 2.0 above the normal; maximum, 100, at Richland, 12th, and at Washington, 19th; minimum, 40, at Atlantic, 5th, and at Sibley, 6th; greatest monthly range, 55, at Atlantic; least monthly range, 31, at Fort Madison.

Precipitation.—The average was 1.00 below the normal; greatest monthly, 7.56, at Atlantic; least monthly, 1.36, at Rock Rapids.

Wind.—Prevailing direction, southeast.—*J. R. Sage, Des Moines, director; G. M. Chappel, Local Forecast Official, Weather Bureau, assistant.*

KANSAS.

Temperature.—The mean was 0.5 above the normal; maximum, 114, at Lakin, 20th; minimum, 31, at Manhattan, 5th; greatest monthly range, 79, at Lakin; least monthly range, 36, at Lawrence.

Precipitation.—The average was 0.88 above the normal; greatest monthly, 13.10, at Lebo; least monthly, 0.51, at Syracuse.

Wind.—Prevailing direction, south.—*T. B. Jennings, Observer, Weather Bureau, Topeka, director.*

KENTUCKY.

Temperature.—Maximum, 97, at Shelbyville, 19th; minimum, 48, at Harrodsburg, 8th, and at Paducah, 1st; greatest monthly range, 48, at Harrodsburg; least monthly range, 20, at South Fork.

Precipitation.—Greatest monthly, 9.80, at Munfordville; least monthly, 1.08, at Caddo.

Wind.—Prevailing direction, southwest.—*Frank Burke, Local Forecast Official, Weather Bureau, Louisville, director.*

LOUISIANA.

Temperature.—The mean was 1.2 below the normal; maximum, 100, at

Clinton and Liberty Hill, 26th, at Lafayette, 27th, and at Schriever, 30th; minimum, 55, at Oxford, 7th; greatest monthly range, 41, at Cameron; least monthly range, 22, at Donaldsonville.

Precipitation.—The average was 1.09 above the normal; greatest monthly, 11.39 at Paincourtville; least monthly, 1.79, at Girard.

Wind.—Prevailing direction, southeast.—*R. E. Kerkam, Local Forecast Official, Weather Bureau, New Orleans, director.*

MARYLAND.

Temperature.—The mean was 0.3 below the normal; maximum, 104, at Kirkwood, Del., 20th; minimum, 40, at Sunnyside, 8th; greatest monthly range, 51, at Sunnyside; least monthly range, 21, at Jewell.

Precipitation.—The average was 1.44 below the normal; greatest monthly, 5.00, at Fenby; least monthly, 0.72, at Barren Creek Springs.

Wind.—Prevailing direction, northeast.—*Dr. William B. Clark, Johns Hopkins University, Baltimore, director; Prof. Milton Whitney, Maryland Agricultural College, secretary and treasurer; C. P. Cronk, Observer, Weather Bureau, in charge.*

MICHIGAN.

Temperature.—The mean was 1.7 above the normal; maximum, 100, at Mio, 20th; minimum, 31, at Crystal Falls, 28th; greatest monthly range, 66, at Crystal Falls; least monthly range, 25, at Arbeta.

Precipitation.—The average was 0.65 below the normal; greatest monthly, 7.19, at Lansing; least monthly, 0.28, at Montague.

Wind.—Prevailing direction, southwest.—*E. A. Evans, Local Forecast Official, Weather Bureau, Detroit, director.*

MINNESOTA.

Temperature.—Maximum, 102, at Crookston, 12th; minimum, 31, at Pokegama Falls, 9th; greatest monthly range, 65, at Pokegama Falls; least monthly range, 37, at Rolling Green.

Precipitation.—Greatest monthly, 5.20, at Saint Vincent; least monthly, 0.33, at Sandy Lake Dam.

Wind.—Prevailing direction, south.—*E. A. Beals, Observer, Weather Bureau, Minneapolis, director.*

MISSISSIPPI.

Temperature.—The mean was 0.9 below the normal; maximum, 101, at Crystal Springs, 26th; minimum, 48, at Corinth, 10th; greatest monthly range, 50, at Corinth; least monthly range, 25, at Hattiesburg.

Precipitation.—The average was 0.85 above the normal; greatest monthly, 9.18, at Biloxi; least monthly, 1.25, at Agricultural College.

Wind.—Prevailing direction, southeast.—*R. J. Hyatt, Local Forecast Official, Weather Bureau, Vicksburg, director.*

MISSOURI.

Temperature.—Maximum, 98, at Jefferson City, 18th, and at New Boston and Fayette, 21st; minimum, 42, at Unionville, 1st.

Precipitation.—Greatest monthly, 8.30, at Malden; least monthly, 1.29, at Canton.

Wind.—Prevailing direction, southeast.—*Miss Ida L. Crume, Secretary, State Board of Agriculture, Columbia, director; H. A. McNally, Observer, Weather Bureau, assistant.*

NEBRASKA.

Temperature.—Maximum, 105, at York, 20th; minimum, 33, at Fort Sidney, 3d; greatest monthly range, 68, at Forts Sidney and Robinson; least monthly range, 31, at Syracuse.

Precipitation.—Greatest monthly, 7.27, at Ashland; least monthly, 0.35, at Wayne.

Wind.—Prevailing direction, south.—*George E. Hunt, Local Forecast Official, Weather Bureau, Omaha, director.*

NEVADA.

Temperature.—The mean was 0.1 below the normal; maximum, 100, at Downeyville, 16th, and at Belleville, 1st; minimum, 21, at Stofiel, 14th; greatest monthly range, 68, at Monitor Ranch; least monthly range, 27, at Battle Mountain.

Precipitation.—Greatest monthly, 0.40, at Tuscarora; least monthly, 0.00, at a number of stations.

Wind.—Prevailing direction, south.—*Prof. Charles W. Friend, Carson City, director; F. A. Carpenter, Observer, Weather Bureau, assistant.*

NEW ENGLAND.

Temperature.—The mean was 0.3 below the normal; maximum, 99, at Woodstock, 15th; minimum, 34, at Fort Kent, 28th; greatest monthly range, 64, at Fort Kent; least monthly range, 32, at Woods Holl.

Precipitation.—The average was 0.60 below the normal; greatest monthly, 6.56, at South Dennis; least monthly, 0.99, at Fairfield.

Wind.—Prevailing directions, east and southwest.—*J. Warren Smith, Observer, Weather Bureau, Boston, director.*

NEW JERSEY.

Temperature.—The mean was 0.8 above the normal; maximum, 103, at Millville, Beverly, Imlaytown, and Elizabeth, 20th; minimum, 40, at Gillette, 29th; greatest monthly range, 58, at Gillette and Franklinville; least monthly range, 39, at Atlantic City.

Precipitation.—The average was 1.03 below the normal; greatest monthly, 7.02, at Dover; least monthly, 0.46, at Bridgetown.

Wind.—Prevailing direction, northeast.—*E. W. McGann, Observer, Weather Bureau, New Brunswick, director.*

NEW YORK.

Temperature.—The mean was 2.4 above the normal; maximum, 99, at West Point, 20th; minimum, 37, at South Kortright, 8th, and at Brookfield, 1st; greatest monthly range, 58, at Eden Center; least monthly range, 30, at Dunkirk.

Precipitation.—The average was 1.13 below the normal; greatest monthly, 5.76, at South Kortright; least monthly, 0.50, at Leroy.

Wind.—Prevailing directions, south and southwest.—*Prof. E. A. Fuertes, Dean of the College of Civil Engineering, Cornell University, Ithaca, director; R. M. Hardinge, Observer, Weather Bureau, assistant.*

NORTH CAROLINA.

Temperature.—The mean was 1.2 below the normal; maximum, 102, at Rockingham, 11th; minimum, 43, at Blowing Rock, 29th; greatest monthly range, 46, at Rockingham; least monthly range, 21, at Hatteras.

Precipitation.—The average was 1.46 above the normal; greatest monthly, 11.37, at Columbus; least monthly, 2.16, at Warrenton.

Wind.—Prevailing direction, southwest.—*Dr. Herbert B. Battle, Raleigh, director; C. F. von Herrmann, Observer, Weather Bureau, assistant.*

NORTH DAKOTA.

Temperature.—The mean was 3.8 above the normal; maximum, 103, at Kelso, 12th; minimum, 33, at Valley City, 5th; greatest monthly range, 69, at Valley City; least monthly range, 49, at Dunseith.

Precipitation.—The average was 0.15 below the normal; greatest monthly, 5.54, at Sykeston; least monthly, 0.86, at Medora.

Wind.—Prevailing direction, south.—*W. H. Fallon, Observer, Weather Bureau, Bismarck, director.*

OHIO WEATHER AND CROP SERVICE.

Temperature.—The mean was 0.7 above the normal; maximum, 102, at Greenfield, 19th; minimum, 40, at Green Hill, 7th, and at Logan, 8th; greatest monthly range, 56, at McLuney; least monthly range, 38, at Hiram.

Precipitation.—The average was 0.74 below the normal; greatest monthly, 7.45, at Logan; least monthly, 0.63, at Wellington.

Wind.—Prevailing direction, southwest.—*L. N. Bonham, Columbus, director; C. M. Strong, Observer, Weather Bureau, assistant.*

OKLAHOMA.

Temperature.—Maximum, 112, at Gate City, 23d; minimum, 45, at Purcell, 1st, at Buffalo, 10th, and at Cloud Chief, 16th.

Precipitation.—Greatest monthly, 3.84, at Lehigh; least monthly, 0.51, at Fort Sill.

Wind.—Prevailing direction, south.—*J. I. Widmeyer, Observer, Weather Bureau, Oklahoma City, director.*

OREGON.

The month was the coldest on record.

Temperature.—The mean was 3.2 below the normal; maximum, 95, at Grants Pass, 4th; minimum, 25, at Crook, 19th, and at Lakeview, 22d; greatest monthly range, 62, at Lakeview; least monthly range, 32, at Newport.

Precipitation.—The average was 0.77 below the normal; greatest monthly, 5.64, at Glenora; least monthly, trace, at Sparta, La Grande, and Burns.

Wind.—Prevailing direction, southwest.—*Hon. H. E. Hayes, Master State Grange, Portland, director; B. S. Pague, Local Forecast Official, Weather Bureau, assistant.*

PENNSYLVANIA.

Temperature.—The mean was 0.7 above the normal; maximum, 100, at Hamburg, Lock Haven, Carlisle, Aqueduct, and Blooming Grove, 20th; minimum, 38, at Drifton, 20th and 21st, and at Smethport, 20th; greatest monthly range, 56, at Drifton and Quakertown; least monthly range, 28, at Erie.

Precipitation.—The average was 1.14 below the normal; greatest monthly, 6.50, at Clarion; least monthly, 1.20, at Blooming Grove.

Wind.—Prevailing direction, west.—Under direction of the Franklin Institute, Philadelphia; W. P. Tatham, director; H. L. Ball, Observer, Weather Bureau, assistant.

SOUTH CAROLINA.

Temperature.—The mean was slightly above the normal; maximum, 96, at Youngs Island, 18th; minimum, 53, at Kitchens Mills, 10th.

Precipitation.—Greatest monthly, 16.80, at Charleston; least monthly, 2.32, at McCormick.

Wind.—Prevailing direction, southeast.—*J. H. Harmon, Observer, Weather Bureau, Columbia, director.*

SOUTH DAKOTA.

Temperature.—The mean was 4.3 above the normal; maximum, 110, at Oelrichs, 11th; minimum, 31, at Castlewood and Cross, 6th; greatest monthly range, 75, at Oelrichs; least monthly range, 44, at Wolsey.

Precipitation.—The average was 1.82 below the normal; greatest monthly, 3.15, at Cross; least monthly, 0.36, at Sioux Falls.

Wind.—Prevailing direction, south.—*S. W. Glenn, Local Forecast Official, Weather Bureau, Huron, director.*

TENNESSEE WEATHER AND CROP SERVICE.

Temperature.—The mean was 0.5 below the normal; maximum, 98, at Covington, 13th; minimum, 50, at Brownsville, 12th, 25th, 26th, and 28th; greatest monthly range, 47, at Covington; least monthly range, 24, at Byrds-ton and Florence Station.

Precipitation.—The average was 0.81 below the normal; greatest monthly, 6.66, at Riddleton; least monthly, 1.30, at Brownsville.

Wind.—Prevailing direction, south.—*J. B. Marbury, Local Forecast Official, Weather Bureau, Nashville, director.*

TEXAS.

Temperature.—The mean was 0.5 below the normal; maximum, 112, at Fort Ringgold, 1st; minimum, 44, at Childress, 15th, and at Fort Hancock, 2d; greatest monthly range, 66, at Fort Hancock; least monthly range, 14, at Flower Bluff.

Precipitation.—The average was 0.29 below the normal; greatest monthly, 9.93, at Huntsville; least monthly, 0.00, at several stations.

Wind.—Prevailing direction, south.—*D. D. Bryan, Galveston, director; I. M. Cline, Local Forecast Official, Weather Bureau, assistant.*

UTAH.

Temperature.—Maximum, 105, at Saint George, 6th and 30th; minimum, 19, at Soldier Summit, 3d; greatest monthly range, 74, at Soldier Summit; least monthly range, 51, at Logan.

Precipitation.—Greatest monthly, 0.17, at Castle Gate; least monthly, 0.00, at a great number of stations.

Wind.—Prevailing direction, northwest.—*G. N. Salisbury, Observer, Weather Bureau, Salt Lake City, director.*

VIRGINIA.

Temperature.—Maximum, 100, at Nottoway, 19th; minimum, 45, at Dale Enterprise, 9th; greatest monthly range, 50, at Nottoway; least monthly range, 29, at Salem.

Precipitation.—Greatest monthly, 8.36, at Norfolk; least monthly range, 1.35, at Alexandria.

Wind.—Prevailing direction, southwest.—*Dr. E. A. Craighill, Lynchburg, director; J. N. Ryker, Observer, Weather Bureau, assistant.*

WASHINGTON.

Temperature.—The mean was 5.0 below the normal; maximum, 89, at Ferry, 4th, and at Tacoma, 5th; minimum, 30, at Davenport, 19th.

Precipitation.—Greatest monthly, 7.99, at Neah Bay; least monthly, 0.11, at Fort Simcoe.—*H. F. Alciatore, Observer, Weather Bureau, Olympia, director.*

WEST VIRGINIA.

Temperature.—Maximum, 99, at Morgantown, 20th; minimum, 40, at Davis, 8th and 24th; greatest monthly range, 53, at Morgantown; least monthly range, 35, at Weston.

Precipitation.—Greatest monthly, 6.41, at Bluefield; least monthly, 1.83, at Martinsburg.

Wind.—Prevailing direction, west.—*W. W. Dent, Observer, Weather Bureau, Parkersburg, director.*

WISCONSIN.

Temperature.—The mean was 3.0 above the normal; maximum, 100, at Crandon, 12th, and at Menomonie, 13th; minimum, 33, at Bayfield, 15th, and at Ashland, 11th.

Precipitation.—The average was about 2.00 below the normal; greatest monthly, 6.69, at Madison; least monthly, 0.89, at Oconto.

Wind.—Prevailing direction, southwest.—*W. L. Moore, Local Forecast Official, Weather Bureau, Milwaukee, director.*

WYOMING.

Temperature.—Maximum, 108, at Wheatland, 18th; minimum, 27, at Arland, 6th; greatest monthly range, 72, at Wheatland; least monthly range, 54, at Saratoga.

Precipitation.—Greatest monthly, 1.75, at Sundance; least monthly, 0.10, at Wheatland.—*E. M. Ravenscraft, Observer, Weather Bureau, Cheyenne, director.*

METEOROLOGICAL TABLES.

Meteorological record of voluntary and other co-operating observers, June, 1893.

Stations.	Temperature. (Fahrenheit.)			Precip'n.	Stations.	Temperature. (Fahrenheit.)			Precip'n.
	Max.	Min.	Mean.			Max.	Min.	Mean.	
Alabama.	o	o	o	Ina.	Arizona—Cont'd.	o	o	o	Ins.
Alico	96	60	78.2	Buckeye †	115	55	83.4	o. 00
Bermuda *†	93	64	77.6	3.70	Calabasas †	106	53	79.6	0.00
Birmingham †	23*	58*	77.8	3.25	Casa Grande *†	110	75	94.7	0.00
Brewton †	101	60	79.8	3.45	Chiricahua Mts †	0.29
Camden *†	92	70	77.3	3.66	Crittenden *†	105	50	80.7	0.00
Citronelle †	94	69	78.9	4.67	Dragoon †	0.00
Claiborne Landing †	....	....	3.40	Dragoon Summit *†	101	70	87.4	0.00
Cordova †	....	....	7.96	Eagle Pass. *†	106	57	82.9	T
Decatur *†	....	....	5.13	Fort Mohave.	116	70	80.0	T
Decatur †	93	52	74.5	Gilb. Bend a†	108	64	93.0	0.00	
Demopolis †	....	....	3.05	Gila Bend b*†	116	78	95.1	0.00
Eufaula a†	93	64	79.0	Holbrook †	97	43	71.0	0.04	
Eufaula c†	....	....	4.41	Maricopa *†	109	84	90.2	0.00
Florence a†	....	....	5.74	Mount Huachuca †	105	55	81.5	T
Florence b†	91	55	75.6	Natural Bridge †	....	....	0.00	....
Fort Deposit †	93	50	77.8	Oracle †	100	58	82.1	....
Gadsden †	....	....	4.02	Palomas †	116	54	85.6	0.00
Geneva †	98	64	79.8	Pantanio *†	114	72	86.6	0.00	
Greensboro †	91	63	75.8	Payson *†	....	....	0.00	....
Healing Springs †	96	50	75.5	Peoria †	109	61	86.5	0.00	
Highland Home †	90	63	77.2	Phoenix a†	114	59	85.1	0.00	
Livingston a*†	88	66	76.1	Red Rock *†	110	75	94.0	0.00	
Lynn a†	....	....	5.16	Reymert †	106	59	83.3	0.00
Lynn b†	91	56	75.5	Ryo †	....	....	0.00	....
Marion †	94	61	77.6	S. H. Helena R'h *†	96	66	79.0	0.00	
Maysville †	97	63	75.5	San Carlos.	110	50	81.4	0.00	
Mount Willing †	93	63	78.2	Show Low.	....	....	0.00	....
Newborn †	89	64	77.2	Signal †	108	58	84.0	T	
Newburg †	95	52	74.8	Tevislon.	....	....	0.00	....
Opelika †	95	63	78.0	Texas Hill *†	116	74	95.3	0.00	
Oxanna *†	89	56	73.4	Tucson a†	109	61	86.7	0.00	
Pine Apple †	97	58	78.4	Tucson b*†	106	80	92.9	0.00	
Pushmataha †	93	65	77.6	Walnut Grove.	....	....	0.00	....
Seima a†	....	....	7.29	Walnut Ranch *†	99	60	78.7	0.00
Sturdevant †	....	....	3.29	Whipple Barracks.	96	39	65.0	0.00
Talladega †	....	....	4.70	Wilgus †	....	....	0.10	....
Tallassees Falls †	....	....	6.63	Willcox *†	106	55	83.9	0.00
Tuscaloosa †	....	....	6.51	Yuma *†	107	70	88.9	0.00
Tuscumbia *†	92	65	76.4	Arkansas.	....	....	....	....
Tuscumbia b†	95	58	77.3	Arkadelphia †	....	....	4.44	....
Union Springs *†	95	59	80.0	Arkansas City †	....	....	6.61	....
Union Springs b†	93	58	77.4	Ashdown †	95	57	76.2	4.48	
Valley Head †	86	56	72.1	Bee Branch †	95	54	75.6	5.30	
Warrior †	....	....	5.32	Brinkley †	94	58	75.6	4.31
Wilsonville †	....	....	3.72	Conway *†	89	63	74.4	3.77
Alaska.	....	....	....	....	....	....	....	....
Killianoo †	60	36	49.4	Camden a†	....	....	10.94	....
Metlakahtla †	68	34	53.0	Camden b†	94	60	75.5	10.24	
Arizona.	....	....	....	Conway *†	89	63	74.4	3.77
Antelope Valley †	....	....	....	....	....	....	....	....
Aris. Can. Co. Dam. †	III	....	....	....	....	....	....	....
Benson *†	105	70	90.8	....	....	....	....	....
Bisbee †	99*	53	80.1	....	....	....	....	....

Meteorological record of voluntary observers, &c.—Continued.

Stations.	Temperature. (Fahrenheit.)			Precip'n.	Stations.	Temperature. (Fahrenheit.)			Precip'n.
	Max.	Min.	Mean.			Max.	Min.	Mean.	
Arkansas—Cont'd.	o	o	o	Ins.	California—Cont'd.	o	o	o	Ins.
Corning †	93	55	74.8	3.84	Berkeley	91	46	61.0	0.00
Dardanelle †	94	53	76.5	5.22	Bishop Creek *†	98	59	82.3	0.00
Fayetteville †	94	50	73.7	3.27	Boca *†	85	35	56.1	0.00
Forrest †	94	60	77.5	7.00	Borden *†	103	54	74.8	0.00
Fulton †	....	....	....	....	Boulder Creek *†	99	40	61.5	0.00
Hamburg.	94	56	76.5	7.74	Brentwood *†	98	60	73.9	0.00
Helena a†	....	....	....	....	Brighton *†	99	58	76.1	0.00
Helena b†	97	58	77.7	5.89	Byron *†	100	50	68.3	0.00
Hot Springs	99	50	76.8	5.89	Caliente *†	102	57	82.0	0.00
Keesees Ferry †	96	49	73.8	5.60	Calistoga *†	99	54	70.4	0.00
Kirby †	93	55	75.4	6.80	Carpo Seco.	....	....	....	....
Lonoke *†	98	62	79.5	7.56	C. M. Mendocino L. H.	....	....	....	....
Madding *	....	....	....	....	Capitolia *†	82	52	63.7	0.00
Malvern †	92	54	74.8	3.18	Castroville *†	75	50	59.6	0.00
Marcella?	99	59	79.0	5.28	Centerville *†	102	55	64.3	0.02
McCarolla?	97	59	79.1	5.28	Chico *†	96	52	71.0	0.00
Melbourne †	97	49	75.2	4.31	Chino *†	97	59	74.0	0.00
Mount Nebo †	87	55	72.6	3.75	Cisco *†	70	32	47.5	T.
New Gascony *†	92	65	76.9	5.35	Citrus *†	102	54	74.0	0.00
Newport a†	....	....	....	....	Clarendon †	95	44	67.5	0.00
Newport b†	95	59	77.6	3.26	Colfax *†	94	44	69.1	0.00
Osceola †	92	60	75.1	6.10	Colton *†	100	55	74.0	0.00
Orsark †	96	57	77.4	4.39	Colusa †	97	50	69.8	0.00
Pine Bluff	96	54	76.4	6.60	Corning *†	104	54	74.9	0.00
Prescott †	91	59	76.1	4.40	Crescent City L. H.	....	....</td		

Meteorological record of voluntary observers, &c.—Continued.

Stations.	Temperature. (Fahrenheit.)			Precip'n.	Stations.	Temperature. (Fahrenheit.)			Precip'n.
	Max.	Min.	Mean			Max.	Min.	Mean	
California—Cont'd.	°	°	°	Ins.	California—Cont'd.	°	°	°	Ins.
French Corral.....	93	48	69.5	0.00	Pomona * ⁸	100	45	71.2	0.00
Fresno * ⁸	101	57	76.6	0.00	Porterville a * ⁸	104	62	81.0	T.
Fruto * ⁸	100	60	76.6	0.00	Puente * ⁸	58	64.4	0.00	
Galt * ⁸	100	62	72.7	0.00	Ravenna * ⁸	97	58	70.4	0.00
Georgetown †.....	92	40	66.8	0.00	Red Bluff * ⁸	102	64	79.7	0.00
Gilroy * ⁸	98	50	66.9	0.00	Redding a * ⁸	102	58	77.3	0.00
Girard * ⁸	91	55	67.0	0.00	Redding b †.....	100	54	72.0	0.00
Glen Ellen * ⁸	100	55	69.6	0.00	Redlands b * ⁸	96	56	73.1	0.00
Goshen * ⁸	102	50	75.8	0.00	Repsa ¹	93	51	70.6	0.00
Grass Valley a.....	.....	.....	.....	0.00	Rio Vista.....	100	48	69.4	0.00
Gridley * ⁸	104	58	73.6	0.00	Riverside a †.....	104	46	70.8	0.00
Haywards * ⁸	88	55	63.4	0.00	Rocklin * ⁸	100	57	74.4	0.00
Hollister * ⁸	96	45	64.3	0.00	Rose Island L. H. ....	.....	.....	.....	.....
Hornbrook * ⁸	90	54	66.2	T.	Rumsey * ⁸	105	63	79.3	0.47
Humboldt L. H. ....	.....	.....	.....	0.00	Sacramento a ¹	88	42	64.8	0.00
Huron * ⁸	100	58	77.9	0.00	Sacramento b * ⁸	93	52	70.0	0.00
Hydesville †.....	89	34	54.6	0.32	Sacramento c * ⁸	86	58	70.6	0.00
Independence †.....	90	47	73.6	0.00	Salinas b * ⁸	75	55	64.6	0.00
Indio * ⁸	112	70	91.9	0.00	Salton * ⁸	118	79	95.9	0.00
Ione * ⁸	97	58	71.5	0.00	San Ardo a * ⁸	105	47	64.2	0.00
Iowa Hill * ⁸	91	51	68.1	0.00	San Ardo b †.....	105	35	64.8	0.00
Irvington †.....	93	42	61.6	0.00	San Bernardino †.....	98	46	71.0	0.00
Jackson.....	89	38	65.0	0.00	San Gabriel * ⁸	96	58	73.1	0.00
Joiner.....	.....	.....	.....	0.00	Sanger Junction * ⁸	108	52	78.8	0.00
Julian * ⁸	96	43	68.8	0.00	San Jacinto †.....	102	38	70.0	0.00
Keele * ⁸	92	58	77.6	0.00	San Jose a * ⁸	94	51	61.1	0.15
Kenne d Gold.....	94	52	69.8	0.00	San Jose b.....	92	33	58.9	T.
Mine * ¹	96	42	65.0	0.00	San Luis L. H. ....	.....	.....	.....	.....
King City * ⁸	102	48	61.5	0.00	San Luis Obispo.....	.....	.....	.....	.....
Kingsburg * ⁸	105	60	80.4	0.00	San Mateo * ⁸	94	55	65.3	0.00
Knights Landing * ⁸	95	64	79.0	0.00	San Miguel * ⁸	99	53	70.3	0.00
Lagrange * ⁸	105	49	72.9	0.00	San Pedro * ⁸	83	60	68.8	0.00
Lathrop * ⁸	95	57	72.9	0.00	Santa Ana * ⁸	95	56	70.6	0.00
Laurel * ⁸	95	46	65.9	0.00	Santa Barbara a.....	86	49	62.2	0.00
Lemoore a * ⁸	104	56	77.8	0.00	Santa Barbara b * ⁸	80	59	68.2	0.00
Lick Observatory * ⁸	78	33	58.8	0.16	Santa Barbara L. H. ....	.....	.....	.....	.....
Lime Point L. H. ....	.....	.....	.....	0.00	Santa Clara * ⁸	92	45	60.5	0.02
Livermore * ⁸	97	50	64.3	0.00	Santa Cruz a * ⁸	83	43	57.9	0.00
Livingston * ⁸	105	58	78.4	0.00	Santa Cruz b †.....	87	42	60.5	T.
Lodi.....	96	46	68.1	0.00	Santa Cruz L. H. ....	.....	.....	.....	.....
Long Beach * ⁸	84	54	65.9	0.00	Santa Margarita * ⁸	98	43	66.0	0.00
Los Angeles * ⁸	99	54	71.3	0.00	Santa Maria.....	85	41	59.2	0.00
Los Banos * ⁸	95	40	69.0	0.00	Santa Monica * ⁸	82	58	68.6	0.00
Los Gatos a * ⁸	96	52	69.3	0.00	Santa Paula * ⁸	92	50	65.9	0.00
Los Gatos b * ⁸	90	41	66.0	T.	Santa Rosa * ⁸	94	50	67.2	0.00
Mammoth Tank * ⁸	112	75	97.1	0.00	Selma * ⁸	102	60	78.7	0.00
Mare Island L. H. ....	.....	.....	.....	0.00	Shasta †.....	92	35	60.8	0.17
Mariposa * ¹	95	53	72.3	0.00	Shingle Springs * ⁸	90	49	70.7	0.00
Marysville a * ⁸	104	52	76.4	0.00	Sims * ⁸	91	43	63.1	0.00
Meno Park * ⁸	96	48	63.1	0.00	Sisson * ⁸	86	42	60.6	0.00
Merced * ⁸	100	53	73.0	0.00	Soledad * ⁸	98	50	62.9	0.00
Middletown * ¹	100	50	68.2	0.00	Sonoma * ⁴	92	40	59.8	0.00
Modesto * ⁸	100	63	77.5	0.00	S. E. Farrallon L. H. ....	.....	.....	.....	.....
Mohave * ⁸	100	55	76.6	0.00	Spadra * ⁸	99	53	70.8	0.00
Mokelumne Hill * ⁸	55 ¹	70.0	70.1	0.00	Stockton a.....	95	50	68.4	0.00
Monson * ⁸	100	58	81.3	0.00	Stockton b * ⁸	90	59	80.7	0.00
Monterey * ⁸	70	50	56.9	0.00	Summit * ⁸	72	39	55.0	0.00
Monterey (Hotel del Monte) * ⁸	85	50	59.7	0.00	Suisun City * ⁸	95	55	68.2	0.00
Mount Glenwood * ⁸	99	56	75.5	0.00	Susanville * ¹	80	47	62.9	0.00
Napa City a * ⁸	97	50	66.0	0.00	Tehachapi a * ⁸	88	48	69.1	0.00
Napa City b ¹	90	47	64.9	0.00	Tehama * ⁸	96	50	76.8	0.00
National City * ¹	83	51	64.2	0.00	Templeton * ⁸	103	53	71.7	0.00
Needles a †.....	110	64	88.9	0.00	Towles * ⁸	87	52	65.3	0.00
Needles b * ²	102	.....	87.2	0.00	Tracy * ⁸	98	64	77.0	0.00
Nevada City †.....	88	37	60.9	0.00	Traver * ⁸	102	55	79.2	0.00
Newark * ⁸	95	54	69.7	T.	Trinidad L. H. ....	.....	.....	.....	.....
Newcastle a †.....	97	44	68.8	0.00	Tropic * ⁸	92	56	66.8	0.00
Newcastle b * ⁸	100	51	73.3	0.00	Truckee * ⁸	80	38	57.0	0.00
Newhall * ⁸	102	55	73.4	0.00	Tulare a * ⁸	101	62	77.9	0.00
Newman * ⁸	102	65	79.9	0.00	Tulare b.....	.....	.....	.....	.....
Niles * ⁸	91	44	64.9	0.00	Turlock a * ⁸	98	60	79.0	0.00
Nordhoff * ⁸	98	41	66.0	0.00	Turlock b * ⁸	94	50	66.3	0.00
Norwalk * ⁸	92	54	69.1	0.00	Ukiah * ⁸	94	40	62.3	0.00
Oakdale * ⁴	102	52	71.2	0.00	Upper Lake * ⁸	96	41	65.0	0.00
Oakland a.....	91	47	62.3	0.00	Vacaville a * ⁸	102	55	71.2	0.00
Oakland b * ⁸	80	52	63.6	0.00	Vacaville b * ⁸	102	55	72.8	0.00
Ogilby * ⁸	118	80	100.2	0.00	Valley Springs * ⁸	95	60	75.5	0.00
Ontario * ⁸	98	50	73.8	T.	Ventura * ⁸	80	47	62.6	0.00
Orangevale †.....	107	49	72.8	0.00	Vina * ⁸	101	55	76.7	0.00
Orland * ⁸	110	60	77.7	0.00	Volcano Springs * ⁸	121	85	104.8	0.00
Oroville a * ⁸	98	58	75.6	0.00	Walnut Creek.....	102	42	66.9	0.00
Oroville b.....	97	59	77.3	0.00	Westley * ⁸	99	63	76.7	0.00
Palermo †.....	103	47	73.0	0.00	Wheatland.....	101	49	71.6	0.00
Palm Springs * ⁸	112	60	94.6	0.00	Whittier * ⁸	93	59	76.0	0.00
Pasadena ²	91*	46	62.6	0.00	Williams a * ⁸	99	60	76.3	0.00
Paso Robles * ⁸	102	49	70.7	0.00	Willows a †.....	99	49	71.2	0.00
Petaluma * ¹	98	54	64.2	0.00	Willows b * ⁸	96	60	78.6	0.00
Piedras Blancas L. H. ....	.....	.....	.....	Winchester †.....	105	41	72.5	0.00	
Pigeon Point L. H. ....	.....	.....	.....	Winters * ⁸	100	60	80.3	0.00	
Placererville a * ⁸	94	50	66.2	0.00	Woodland * ⁸	97	53	72.5	0.00
Placererville b ¹	95	40	64.9	0.00	Yerba Buena L. H. ....	.....	.....	.....	.....
Pleasanton a * ⁸	102	54	66.8	0.00	Yreka †.....	93	36	61.1	0.32
Pleasanton b	101	40	62.8	0.00	Yuba City * ⁵	96	64	79.4	0.00
Pt Ano Nuevo L. H. ....	.....	.....	.....	COLORADO.	.....	.....	

Meteorological record of voluntary observers, &c.—Continued.

Stations.	Temperature. (Fahrenheit.)			Precip'n.	Stations.	Temperature. (Fahrenheit.)			Precip'n.
	Max.	Min.	Mean			Max.	Min.	Mean	
Illinois—Cont'd.	°	°	°	In.	Iowa—Cont'd.	°	°	°	In.
Carlyle	54	39	50	5.63	Ames b	90	47	69.7	4.90
Chester f.	53	39	48	2.26	Ames c	90	50	59.5	5.59
Collinsville f.	91	53	73.2	2.92	Ames (near) *1	94	50	72.7	4.70
Dixon f.	94	45	69.7	4.42	Atlantic f.	95	40	70.1	7.56
Dubois *1	95	60	73.1	.....	Audubon	93	44	71.6	4.93
East Peoria f.	93	47	71.2	4.39	Belle Plaine	91	47	71.2	3.43
Fort Sheridan f.	84	42	65.8	3.62	Blakeville *	93	54	71.8	3.30
Galva f.	95	49	72.3	1.37	Bonaparte f.	95	49	70.3	4.27
Golconda f.	88	58	74.8	3.78	Carroll f.	92	44	72.2	3.64
Greenville f.	94	52	72.4	5.16	Cedar Falls f.	91	47	70.2	3.15
Griggsville f.	93	50	72.4	3.80	Cedar Rapids f.	90	52	72.2	4.89
Havanna f.	93	55	74.0	2.00	Centerville f.	94	48	72.2	3.05
Hennepin f.	94	52	72.2	2.95	Charles City f.	90	44	72.0	2.71
Herrins Prairie *1	92	60	75.2	4.45	Clarinda f.	85	52	71.7	4.12
Jordans Grove f.	91	53	72.6	4.14	Clinton f.	92	48	71.2	3.22
Kankakee f.	85	50	69.8	1.26	College Springs	92	49	71.9	4.37
Lagrange f.	91	47	69.5	5.30	Corning b f.	87	47	69.4	3.82
Liberty *1	88	52	70.6	1.74	Cresco f.	89	45	68.2	4.14
McLeansboro *1	96	54	72.3	4.54	Delaware f.	92	55	69.9	4.29
Martinsville f.	90	51	71.3	3.15	Denison *1	87	50	71.4	3.05
Mascoutah *1	92	52	74.0	2.84	Eagle Grove *1	82	70.4	5.90	.....
Mattoon f.	94	56	72.1	2.00	Eldaker f.	94	46	70.6	2.92
Mount Carmel f.	.....	.....	5.84	Emmettsburg f.	93	44	69.6	1.73	
Mount Pulaski f.	93	53	72.7	3.41	Estherville f.	91	46	72.2	1.77
Muddy Valley *1	90	64	75.8	5.00	Fort Madison *1 f.	92	60	75.6	2.67
Olinay a *1	92	52	75.4	3.38	Grand Meadow *1	92	54	68.8	3.29
Olinay b *1	98	55	72.7	5.52	Greenfield f.	90	46	71.2	3.08
Oregon f.	96	57	76.9	3.72	Grundy Center	.....	.....	.....	3.07
Oswego *1	91	55	68.7	3.27	Hampshire f.	93	45	68.9	2.87
Ottawa f.	94	46	72.2	3.49	Hawkeye f.	.....	.....	.....	2.87
Palestine f.	93	50	71.4	4.00	Hoperville f.	88	48	69.8	4.05
Pana f.	94	53	76.2	.....	Hopkinton *1 f.	91	52	71.0	5.43
Paris f.	93	49	72.4	4.24	Humboldt f.	.....	.....	.....	3.78
Peoria a f.	.....	.....	2.32	Independence f.	91	47	69.3	3.57	
Peoria b f.	95	55	75.7	1.82	Indianola f.	89	48	70.4	6.87
Philo f.	89	48	71.2	1.67	Iowa City a f.	99	45	71.4	3.01
Quincy f.	91	55	74.8	4.09	Iowa City b f.	.....	.....	.....	2.82
Kantoul *1	95	58	76.8	1.11	Iowa Falls f.	89	45	69.4	2.79
Riley f.	89	49	67.9	5.13	Jefferson f.	92	42	71.5	4.40
Rushville f.	95	52	75.3	3.03	Kearnsauqua f.	95	49	72.9	2.73
Saint John *1	92	62	74.6	4.66	Knoxville f.	91	51	72.5	4.63
Shawneetown f.	.....	.....	3.12	Larrabee f.	93	53	71.2	2.19	
Streator f.	95	46	73.0	0.96	Le Claire f.	.....	.....	.....	3.74
Sycamore *1	86	55	68.7	5.04	Logan f.	93	50	71.8	3.97
Tuscola *1	87	57	74.3	0.95	Marshall f.	87	49	70.6	4.04
Walnut f.	99	51	73.4	4.54	Mason City f.	93	53	70.4	5.41
Warsaw f.	.....	.....	1.59	Maxon *1	93	54	72.4	5.59	
Watseka f.	.....	.....	71.3	Mechanicsville	90	47	69.3	2.80	
White Hall f.	92	57	72.0	5.08	Monticello *1 f.	93	49	70.6	5.82
Winnebago f.	89	47	69.2	3.26	Mount Ayr f.	91	50	71.9	4.14
Indiana.	.....	.....	.....	Mount Pleasant a *1	89	54	71.4	4.12	
Angola *1	95	52	70.8	4.12	Mount Vernon *1	94	54	73.0	4.30
Ashboro f.	101	51	69.8	3.86	Murray f.	93	49	70.4	5.37
Bedford f.	97	50	73.3	4.01	Muscatine f.	93	49	71.2	3.61
Butlerville f.	93	47	71.2	4.43	Newton f.	95	48	72.0	3.65
Cambridge City f.	90	48	69.8	3.38	Oskaloosa f.	91	45	70.8	4.87
Columbia City *1	88	50	69.5	2.41	Ovid f.	93	48	70.0	4.31
Columbus *1	93	62	71.4	2.10	Panama f.	88	45	69.6	4.44
Connerville f.	89	50	70.2	3.87	Richland *1	100	53	71.4	3.53
Degonia Springs *1	90	56	74.0	3.57	Rock Rapids f.	95	43	70.7	1.36
Delphi f.	92	44	68.8	2.12	Sac City f.	89	54	70.3	5.06
Evansville f.	.....	.....	4.38	Seymour f.	95	47	70.6	3.19	
Farmland f.	89	47	70.4	2.83	Storm Lake f.	92	53	72.4	3.34
Franklin *1	90	60	72.0	3.03	Tipton f.	95	48	71.4	2.18
Hammond f.	92	49	71.8	2.30	Villisca f.	90	50	73.1	3.80
Hawpatch *1	89	45	68.7	3.76	Vinton f.	89	53	70.4	3.19
Huntingburg *1	88	60	68.9	7.15	Wabona f.	95	49	70.6	5.06
Jeffersonville f.	93	52	74.4	4.68	Washington f.	100	50	76.5	3.83
Kokomo f.	98	47	73.6	1.48	Webster City *1	98	52	70.5	2.76
Laconia *1	92	57	74.1	4.97	Williams *1	92	53	68.7	3.01
Lafayette f.	95	46	71.6	1.93	Winterset f.	92	48	70.9	5.86
Logansport b.	.....	.....	2.52	Kansas.	.....	.....	.....	.....
Logansport b.	93	49	72.2	2.17	Abilene f.	99	51	75.3	9.80
Madison a f.	.....	.....	4.69	Allison *1 f.	104	45	75.4	1.68	
Madison b.	93	61	75.8	4.47	Altoona f.	90	58	74.6	4.25
Marengo *1	94	55	73.1	6.50	Atchison f.	93	53	73.5	6.25
Marion f.	92	45	72.0	2.28	Beloit f.	104	40	74.3	4.94
Mausy	91	48	71.1	3.67	Buffalo Park f.	99	56	75.4	0.80
Mount Vernon b.	92	53	74.1	3.70	Cawker City f.	100	56	75.4	0.80
Muncie f.	91	60	77.0	1.15	Colby f.	103	41	72.8	1.69
New Albany *1	88	60	74.0	4.52	Coldwater f.	110	45	77.6	1.69
Princeton f.	96	54	74.3	4.73	Collyer f.	96	50	76.0	1.80
Rockville f.	93	49	71.6	4.12	Columbus f.	94	49	73.6	3.35
Rushville f.	.....	.....	3.05	Cunningham f.	107	48	70.0	2.09	
Seymour f.	93	54	72.8	2.06	Downs f.	.....	.....	.....	6.18
Shelbyville f.	.....	.....	1.82	Eldorado f.	105	49	74.6	4.09	
Terre Haute f.	91	53	72.2	4.30	Ellik City f.	97	58	74.8	3.33
Union City f.	96	43	68.6	4.38	Ellis f.	110	46	75.4	2.74
Valparaiso f.	90	49	68.6	.....	Englewood f.	113 ²	49 ⁶	75.4	3.87
Vevay f.	94	48	73.5	6.65	Eureka Ranch f.	111	41	76.5	2.84
Vincennes f.	.....	.....	4.98	Fort Riley f.	96	51	73.4	6.40	
Worthington f.	90	51	71.8	3.95	Gove City f.	108	53	77.2	3.12
Indiana Territory.	.....	.....	3.19	Grainfield f.	105	48	74.2	1.50	
Colbert f.	.....	.....	2.02	Greenburg f.	106	49	74.9	0.87	
Eufaula f.	.....	.....	5.90	Grenola f.	100	53	74.7	3.58	
Fort Supply	111	46	76.5	0.74	Hammont f.	96	65	79.7	5.27
Gwendale f.	95	52	74.8	3.39	Houma f.	96	68	80.3	5.66
Kemp f.	103	55	79.6	2.73	Jeanerette f.	99	58	81.4	9.01
Lehigh f.	96	53	77.2	3.94	Lafayette f.	100	66	81.6	5.48
Purcell f.	105	45	79.0	1.20	Hays City f.	109	42	71.8	3.55
Tulsa f.	.....	.....	5.90	Horton f.	95	51	73.0	4.33	
Java.	91	56	71.2	1.69	Hutchinson f.	100	49	74.6	3.86
Algonia *1	91	56	71.2	1.69	Independence f.	100	53	73.9	3.93
Alta f.	89	44	70.8	5.48	Kansas City f.	91	49	72.1	2.00
Amana f.	93	48	71.3	4.38	Kellogg f.	110	50	76.0	4.39

Meteorological record of voluntary observers, &c.—Continued.

Stations.	Temperature. (Fahrenheit.)			Precip'n.	Stations.	Temperature. (Fahrenheit.)			Precip'n.
Max.	Min.	Mean	Max.	Min.	Mean				

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Meteorological record of voluntary observers, &c.—Continued.

Stations.	Temperature. (Fahrenheit.)			Precip'n.	Stations.	Temperature. (Fahrenheit.)			Precip'n.
	Max.	Min.	Mean			Max.	Min.	Mean	
Massachusetts—Con.	0	0	0	Ins.	Minnesota—Cont'd.	0	0	0	Ins.
Monroe	86	42	64.2	3.60	Bingham Lake†	90	0	2.28	
Monsion ¹	93	44	67.2	3.68	Blooming Prairie ^{*1}	92	50	70.7	2.75
Mystic Lake	.....	.....	2.10		Bonniwells Mills†	92	57	73.8	0.07
Mystic Station	.....	.....	2.07		Cambridge†	97	40	70.2	1.14
New Bedford ^a	91	47	61.9	3.00	Camden†	96	44	69.8	2.68
New Bedford ^b	93	42	63.8	3.13	Clear Lake†	91	36	70.2	1.35
Newburyport ^a	.....	.....	1.46		Collegeville	92	40	71.0	1.70
North Billerica ^a	98	47	69.1	3.16	Crookston†	104	40*	69.0*	.....
Plymouth ^a	88 ^c	53	66.4 ^d	2.50	Crookston†	.....	.....	3.86	
Provincetown ^a	90	45	63.6	5.50	Farmington†	94	40	70.8	1.66
Randolph	.....	.....	2.48		Fergus Falls†	95	47	69.2	1.49
Roberts Dam	.....	.....	2.25		Fort Ripley†	.....	.....	3.39	
Roxbury	91	48	64.4	2.15	Grand Meadow ^{*1}	97	48	69.6	3.86
Royalston ^a	86	50	65.4	4.38	Granite Falls	95	40	69.8	2.56
Salem ^b	.....	.....	3.31		Holland†	95	38	67.8	2.16
Salisbury	.....	.....	2.59		Winnibigoshish ^a	95	48	67.0	1.56
Somerset ^a	98	54	68.9	3.34	Leech Lake ^b	97*	36	68.2	1.81
South Dennis ^a	90	45	62.6	6.56	Long Prairie†	95	37	69.8	1.04
Springfield Arm'y	96	50	69.2	3.69	Luverne†	.....	.....	1.50	
Taunton ^b	92	43	65.2	2.41	Maple Plain	93	44	70.7	1.43
Taunton ^c	93	40	65.0	2.17	Minneapolis ^a	93	45	71.7	1.76
Taunton ^d	95	40	65.1	2.47	Minneapolis ^b	99*	45	71.6	1.05
Turners Falls	92	50	67.9	2.77	Minnesota City†	96	48	72.3	1.09
Wakefield†	92	45	65.5	1.82	Montevideo†	95	38	70.4	1.09
Walsham	.....	.....	2.06		Morris	96	49	70.8	0.67
Welesley	93	46	65.8	2.03	New London	94	39	70.6	1.55
Westboro†	90	43	67.6	2.11	Park Rapids†	99	37	67.5	2.05
Williamstown ^a	87	46	68.0	2.08	Pine River ^a	91	50	69.6	3.91
Winchester	.....	.....	1.81		Pokegama Falls ^a	96*	31	67.0	3.22
Winthrop	93	48	64.1	2.43	Redwood Falls†	.....	.....	1.76	
Worcester ^a	94	45	66.4	2.28	Rolling Green†	88	51	69.9	1.65
Worcester ^b	91	46	65.4	2.54	Saint Charles†	92	44	69.0	2.00
Michigan	.....	.....			Saint Cloud ^{*1}	96	50	72.1	0.54
Adrian	94	44	70.0	3.64	Saint Olaf†	96*	44	69.8	0.84
Albion ^a	90	51	70.0	4.37	Saint Peter†	93	43	72.0	3.18
Allegan	95	48	69.7	2.96	Sandy Lake Dam ^a	95*	36	68.9	.....
Alma	94	44	68.2	3.38	Wabasha ^a	92	57	73.2	1.61
Ann Arbor ^a	87	49	69.4	4.06	Willmar†	95	41	68.4	2.02
Arbela ^a	.....	.....	67.7	4.59	Winona ^a	95	55	73.1	1.60
Ball Mountain	87	47	68.0	6.47	Mississippi	.....	.....
Bear Lake	91	35	65.4	2.20	Agricult'ral Col'ge ^a	95	61	78.3	1.25
Bellaire ^a	97	37	66.8	1.92	Batesville†	92	56	70.6	7.67
Benton Harbor	91	48	69.4	3.20	Biloxi†	93	66	79.4	9.18
Benzonia	92 ^a	41 ^b	65.4 ^c	1.70	Brookhaven†	99	61	79.4	6.93
Berlin ^a	96	42	69.4	4.90	Canton†	93	63	77.6	4.62
Berrien Springs ^a	94	54	71.5	3.85	Clarksdale†	92	60	76.8	4.64
Birch Run	94 ^e	48	70.4 ^e	5.87	Columbus ^a	.....	.....	3.64	
Birmingham ^a	95 ^e	48 ^e	71.0 ^e	4.70	Corinth†	98	48	70.0	7.51
Boon	94	38	66.4	3.14	Crystal Springs†	101	61	80.4	6.24
Bronson	92	45	69.6	2.67	Edwards	97	62	80.8	4.10
Brown City	97	45	69.4	4.39	Enterprise†	96	59	77.1	4.65
Calumet	91	37	64.2	1.37	Fayette†	92	62	78.4	6.10
Charlevoix	94	36	63.6	0.34	Greenville ^a	93	62	77.8	7.65
Otinton	96	45	69.9	3.72	Greenville ^b	94	62	79.2	6.16
Crystal Falls	97	31	66.4	0.90	Hartford ^a	97	59	77.4	2.84
Evart	95	39	67.0	3.26	Hattiesburg†	94	69	80.8	4.40
Fairview	90	50	68.0	2.70	Louisville†	95	57	77.0	1.35
Fitchburg	93	42	65.2	6.27	Hernando†	94	58	77.2	5.04
Flint	94	46	67.4	4.23	Holly Springs†	95	56	77.1	4.12
Gaylord	93	40	66.0	2.15	Jackson†	97	60	79.6	1.79
Glenwood	83	48	65.6	3.27	Kosciusko†	93	59	70.0	3.16
Grape	88	50	70.0	4.59	University†	93	56	76.3	6.09
Grayling	98	35	66.8	0.97	Vaiden†	98	57	77.5	3.92
Hanover	90	48	69.2	4.74	Water Valley ^a	100	53	74.1	6.76
Harbor Springs ^a	94	38	65.1	0.78	Missouri	.....	.....
Harrisville	91	37	63.2	1.70	Natches†	95	67	79.6	5.35
Hart	.....	.....	71.8	0.95	Palo Alto†	95	61	75.1	2.33
Hastings	93	50	69.6	5.50	Pontotoc†	94	57	75.9	5.84
Hayes	94	44	68.4	1.25	Port Gibson†	97	57	78.2	8.68
Highland Station	.....	.....	5.89		University†	93	56	76.3	6.09
Howell	92	45	68.3	4.37	Vaiden†	98	57	77.5	3.92
Ivan ^a	98	42	68.0	0.92	Water Valley ^b	100	53	74.1	6.76
Jeddo ^a	20	45	66.6	5.38	Missouri	.....	.....
Kalamazoo	89	53	70.6	2.94	Natches†	95	67	79.6	5.35
Lansing ^a	89	50	68.6	7.19	Palo Alto†	95	61	75.1	2.33
Lathrop ^a	95	48	66.7	1.73	Pontotoc†	94	57	75.9	2.94
Lewiston	99	43	70.4	1.67	Port Gibson†	97	57	78.2	8.68
Madison	89	46	69.4	3.37	University†	93	56	76.3	6.09
Marshall ^a	97	47	69.3	4.17	Vaiden†	98	57	77.5	3.92
Mayville	91	50	69.4	3.86	Water Valley ^a	100	53	74.1	6.76
Mio	100	41	69.4	0.94	Missouri	.....	.....
Montague	86	35	64.6	0.28	Natches†	95	67	79.6	5.35
Mottville	94	45	70.2	2.64	Palo Alto†	95	61	75.1	2.33
North Marshall	87	43	66.2	3.50	Pontotoc†	94	57	75.9	2.94
Olivet	90	38	66.2	3.00	Port Gibson†	97	57	78.2	8.68
Ovid	92	48	69.3	4.40	University†	93	56	76.3	6.09
Paris	93	42	66.4	2.60	Vaiden†	98	57	77.5	3.92
Parkville	.....	.....	3.61		Water Valley ^b	100	53	74.1	6.76
Rawsonville ^a	90	50	69.8	4.40	Missouri	.....	.....
Rockland ^a	98	41	68.1	2.58	Natches†	95	54	73.3	3.75
Saint Ignace	88	40	61.4	2.30	Carrollton†	95	54	75.6	5.35
Sand Beach	93 ^b	43 ^b	64.1 ^c	.....	Edge Hill ^a	94	56	66.0	5.11
Stockbridge	.....	.....	4.80		Edge Hill ^b	95	56	71.4	3.29
Thorntville ^a	23	51	70.4	3.87	Canton	95	52	73.4	5.65
Vandalia	88	49	68.9	4.17	Cape Girardeau†	95	55	75.6	5.35
Williamston ^a	86	56	68.4	5.05	Carrollton†	95	54	73.3	3.75
Ypsilanti	91	46	67.5	4.32	Edge Hill ^b	95	54	73.0	4.06
Minnesota	.....	.....			Edge Hill ^c	95	54	73.8	2.37
Ada†	.....	41	.....	2.01	Eldon ^a	92	54	71.5	4.06
Albert Lea ^a	98	44	68.6	2.77	Eldon ^b	92	54	71.5	4.06
Alexandria ^a	.....	39	.....		Eldon ^c	92	54	71.5	4.06
Alexandria ^b	95	48	71.6	.....	Edge Hill ^a	95	54	73.3	3.75
Alma City†	90	42	59.3	2.70	Edge Hill ^b	95	54	73.0	4.06
Beardsley†	.....	1.58	.....		Edge Hill ^c	95	54	73.0	4.06

Meteorological record of voluntary observers, &c.—Continued.

Stations.	Temperature. (Fahrenheit.)			Precip'n.	Stations.	Temperature. (Fahrenheit.)			Precip'n.
Max.	Min.	Mean	Max.	Min.	Mean				

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Meteorological record of voluntary observers, &c.—Continued.

Stations.	Temperature. (Fahrenheit.)			Precip'n.
	Max.	Min.	Mean	
N. Hampshire—Con.	9	9	9	Ins.
Grafton ⁵	91 ⁶	39 ^b	69.0 ^a	2.73
Hanover ⁶	87	44	66.4	4.72
Keene	91	43	65.4	3.21
Lakeport			2.66	
Lancaster	92	42	66.3	2.59
Littleton ¹	91	41	64.0	5.04
Manchester ¹	90	46	66.8	1.96
Nashua	94	46	65.5	2.71
Newton	93	42	64.3	2.43
North Conway	91	39	64.0	1.71
Plymouth ¹	96	43	65.0	1.92
Sanbornton ¹	89	42	63.8	2.41
Stratford	93	41	68.8	2.86
Wiers Bridge			2.41	
West Milian	87	37	62.6	3.12
New Jersey.				
Allaire	95	44	67.6	.....
Astbury Park	97	50	68.8	5.26
Barneget	96	46	68.0	5.15
Bayonne	100	52	70.6	2.35
Beverly ¹	103	48	69.8	2.35
Billingsport L. II ¹	94	58	73.5	2.46
Boonton			4.43	
Bridgeport ^a	98	51	74.0	4.43
Butler			3.01	
Camden	97	50	71.4	3.35
Cape May	93	48	69.0	2.92
Charlotteburg	95	42	65.9	3.22
Chester	93	49	67.7	4.92
Deckertown	98 ⁴	50	69.3 ^f	2.54
Dover	98	42	67.0	7.02
Egg Harbor City ¹	99	44	68.7	3.63
Elizabethtown ¹	103	52	71.9	2.40
Franklin Furnace	93	45	67.8	2.20
Franklinville	99	41	69.9	1.13
Freehold ¹	94	49	69.0	3.84
Friesburg			1.23	
Gillette	98	40	69.7	3.33
Hammonton			0.59	
Hanover	94	47	69.2	5.25
Highland Park ¹	98	45	70.0	3.05
Hightstown ¹	100	48	67.9	3.23
Imlaystown	103	49	71.6	2.95
Junction			3.16	
Lambertville	97	49	70.2	3.41
Locktown	98	48	70.4	4.43
Millville	103 ⁶	46 ^c	73.2 ^d	0.75
Moorestown ¹	98	45	71.6	3.95
Newark a	96	52	68.4	3.55
Newark b ^f	97	52	69.9	2.89
New Brunswick a	100	49	71.4	3.28
New Brunswick b	96	50	68.8	3.27
Newton ¹	101	44	69.0	1.77
Ocean City	91	49	68.4	2.09
Oceanic ¹	101	54	73.6	0.85
Paterson	101	50	70.6	2.24
Pensanken			3.26	
Plainfield	100	48	70.4	2.58
Rancocas ⁶	98	52	67.7	3.17
Readington ⁶	96	60	74.2	.....
River Vale ¹	98	43	69.0	3.39
Salem	94	45	69.8	2.38
Somerville	103	48	70.6	4.26
South Orange ¹	97	50	68.4	3.61
Tenafly ¹	95	47	66.3	3.72
Toms River	99	44	68.8	3.26
Trenton	97	55	73.4	3.21
Vineland ¹	93	44	71.2	0.71
Whiting	101	47	70.1	2.14
Woodbine	94	43	69.9	2.14
New Mexico.				
Albert ¹	104	51	77.4	0.37
Albuquerque ⁷	96	53	76.0	T.
Chama ⁷	93	25	61.6	0.14
Deming ⁸	108	72	88.8	0.01
East Las Vegas ⁷	90	43	67.8	0.25
Embudo	104	42	74.2	T.
Estalina Springs ⁷			0.07	
Folsom ¹	96 ⁶	37 ^e	66.6 ^e	0.73
Fort Bayard	99	47	74.4	T.
Fort Wingate	93			
Gallina Spring ⁷	101	40	75.3	1.43
Halls Peak ⁷	86	26	66.6	0.46
La Lus ¹	93	59	77.4	0.04
Olio ¹	101	36	71.1	0.00
Socorro ⁷	102	55	79.9	0.03
Springer ⁷	101	40	71.5	0.14
Taos ⁷	98	30	68.7	T.
New York.				
Addison ¹	93	46	67.1	3.04
Akron			3.04	
Alfred Center	91	45	65.8	1.93
Ampersand ¹	89 ⁴	44 ^d	65.4 ^a	3.12
Angelica ¹	90	40	65.6	2.35
Arcade ¹	88	39	65.8	3.03
Arkwright	83	50	65.5	.....
Atlanta			3.04	
Avon			1.02	
Baldwinsville ¹	91	51	68.9	3.87
Bedford			1.99	
Binghamton ¹	93	45	68.0	2.56
Boonville			2.03	
Brentwood ¹	97	44	66.4	0.80
Brockport ¹	92	49	72.3	1.07
Brookfield ¹	91	37	66.1	0.77

Meteorological record of voluntary observers, &c.—Continued.

Stations.	Temperature. (Fahrenheit.)			Precip'n.
	Max.	Min.	Mean	
New York—Cont'd.	9	9	9	Ins.
Canton ¹	90	50	68.1	3.05
Castile			1.46	
Chenango Forks			3.21	
Cherry Creek			3.63	
Constableville ¹	87	44	64.2	2.93
Cooperstown ¹	84	43	66.0	2.20
Cortland	86	46	67.1	1.45
De Kalb Junction			2.37	
Demester			3.77	
Dunkirk	79	49	65.9	3.40
Easton	98	40	68.8	4.80
Ellis			3.48	
Elmira ¹	93	50	71.6	3.62
Factoryville ¹	96	44	69.2	1.97
Fleming ¹	89	50	68.5	1.32
Fort Niagara	92	51	69.0	2.02
Friendship ¹	92	41	65.0	2.04
Geneva ¹	96	40	68.4	3.13
Gloversville ¹	92	43	66.6	1.95
Honeymead Brook ¹	94	46	66.6	1.89
Humphrey ¹	87	45	66.4	1.54
Ithaca ¹	93	40	68.1	2.20
Jamestown ¹	89	54	69.7	.....
Kings Station			1.51	
Lebanon Springs	90	40	65.3	2.67
Le Roy	91	48	69.5	0.50
Lockport	92	48	69.3	2.54
Lowville	91	44	66.9	1.90
Madison Barracks	85	49	69.1	1.66
Malone ¹	85	47	67.7	3.29
Middletown ¹	94	50	68.6	.....
Minnewaska ¹	92	48	64.9	3.03
Mount Morris	92	44	67.9	0.87
Newark Valley			1.79	
Newfield Summit	87	47	67.0	.....
New Lisbon ¹	91	39	63.4	1.97
N'th Hammond ¹	96	45	68.4	1.95
Number Four ¹	85	41	64.5	5.03
Ogdensburg ¹	85	51	67.2	2.55
Oxford	93	44	69.0	3.70
Palermo ¹	93	46	68.1	2.26
Perry City ¹	94	45	66.2	2.13
Phoenix			3.83	
Pine City			3.47	
Plattsburg B'ks	90	50	66.3	2.42
Port Jervis	93	48	68.2	3.79
Potsdam ¹	85	48	67.6	5.00
Poughkeepsie	98	42	68.5	1.49
Rome	87	48	68.9	1.79
Romulus ¹	96	49	70.0	1.41
Rondout ¹			2.91	
Setanket ¹	93	50	65.4	0.55
South Canisteo ¹	92	43	64.6	4.78
South Kortright ¹	92	37	65.7	5.76
Stillwater ¹	93	48	69.4	2.61
Turin	85	46	64.6	4.25
Utica	92	45	68.8	2.35
Varysburg	91	46	67.1	4.09
Wappingers Falls	97	49	70.5	2.09
Watertown	90	48	69.6	2.83
Wedgewood	91	48	66.6	5.51
West Chazy			3.61	
West Point ¹	99	48	70.2	1.83
Willets Point ¹	97	51	68.2	1.90
North Carolina.				
Asheville ¹	85	51	68.0	3.91
Auburn			5.32	
Bethel			3.75	
Carrollton			3.74	
Bryson City ¹			4.21	
Chapel Hill ¹	95	55	76.0	4.21
Columbus	80	54	65.8	11.37
Douglas	96	51	74.6	7.62
Experiment'l Farm	91	58	74.8	3.79
Fayetteville ¹			5.77	
Goldboro ¹	91	57	75.8	6.23
Greensboro ¹	94	55	70.5	4.94
Henderson ¹	94	57	74.1	2.71
Highlands ¹	79	46	62.3	9.66
Horse Cove ¹	84	53	66.1	9.13
Lenoir ¹	84	58	70.5	3.50
Lewiston			5.72	
Lillington ¹	93	54	74.3	4.05
Littleton ¹	93	54	74.3	2.77
Louisburg ¹	88	56	74.4	2.87
Lumberton ¹	94	57	75.8	5.23
Maryland ¹	88	58	71.8	5.23
Maryon	89	53	71.2	5.37
Mocksville ¹	89	60	73.4	2.21
Morganston ¹	89	55	71.3	5.30
Mount Airy ¹	88	58	71.0	5.64
Mount Holly ¹			7.37	
Mount Pleasant ¹	89</td			

Meteorological record of voluntary observers, &c.—Continued.

Stations.	Temperature. (Fahrenheit.)			Precip'n.	Stations.	Temperature. (Fahrenheit.)			Precip'n.
	Max.	Min.	Mean			Max.	Min.	Mean	
Oregon—Cont'd.	80	59	66.9	Ins.	Pennsylvania—Con.	80	60	66.9	Ins.
Eugene	89	39	56.9	1.12	Saltsburg†	.....	.....	4.19	.....
Gardiner	90	44	57.0	2.99	Seisholtzville	.....	.....	2.22	.....
Glenora	24	32	53.4	5.64	Selins Grove	99	46	72.0	4.44
Grants Pass a†	95	32	59.4	1.87	Skippack†	94	49	70.6	3.68
Grants Pass b†	93	37	60.5	1.72	Smethport	91	35	65.9	3.68
Heppner†	84	37	56.7	0.12	Smiths Corners	.....	.....	5.08	.....
Hood River (near)	82	36	54.0	0.50	Somerset†	93	44	67.1	2.02
Hubbard	84	41	57.2	1.40	South Eaton	91	46	68.2	2.98
Jacksonville	88	35	59.2	1.61	State College†	92	46	68.6	3.94
Joseph†	78	28	51.8	0.15	Stayestown†	.....	.....	3.28	.....
Junction City**	80	50	61.3	0.24	Untiontown†	90	47	70.2	2.34
Lafayette**	88	50	63.1	0.54	Warren†	.....	.....	4.52	.....
La Grande†	85	37	59.2	T.	Wellsboro†	92	44	63.8	1.42
Lakeview	87	25	56.4	0.07	West Chester	95	51	70.8	2.59
Langlois	90	35	58.8	2.04	West Newton†	.....	.....	2.77	.....
Leland*	94	42	60.1	1.70	Westtown	95	53	69.4	1.30
McMinnville a†	84	37	56.6	1.12	Wilkesbarre†	96	42	71.2	1.43
Mommouth**	86	52	64.3	0.22	Wysox†	96	44	69.2	2.65
Mount Angel†	90	40	56.8	1.66	York†	98	50	71.0	2.50
Newberg	85	41	57.2	1.09	Rhode Island.	.....	.....	.....	.....
New Bridge	92	38	65.0	0.20	Bristol†	92	47	63.4	2.26
Newport	86	25	49.9	3.09	Kingston†	92	46	61.9	3.92
Oregon City	.....	1.91	.....	Lonsdale	.....	.....	2.48	.....
Pendleton	88	32	59.7	0.30	Olneyville†	92	49	66.8	.....
Portland*	84	50	61.7	1.45	Pawtucket†	93	47	65.0	2.39
Riddles**	96	38	56.6	0.17	Providence a†	96	53	67.3	3.59
Roseburg**	94	45	62.2	0.62	Providence b†	96	45	65.4	3.66
Salem a**	82	50	57.9	0.55	Providence c†	94	46	64.2	3.84
Salem b	87	38	57.8	1.24	Providence d†	92	49	66.8	.....
Sheridan*	90	50	61.9	0.68	South Carolina.	.....	.....	.....	.....
Silverton**	88	50	61.9	1.78	Allendale†	95	60	78.2	8.61
Siskiyou*	85	39	57.8	0.00	Anderson†	.....	.....	6.52	.....
Sparta	80	30	54.1	0.00	Batesburg†	92	61	76.6	12.05
Springfield**	89	49	61.2	0.67	Blacksburg	.....	.....	8.69	.....
The Dalles†	90	42	61.8	0.06	Blackville†	92	58	78.4	6.07
Tillamook R'k L.H.	.....	3.59	.....	Brewer Mine†	93	59	75.7	5.55	
Umatilla†	.....	0.03	.....	Camden†	.....	7.11	.....	.....
Vale	92	32	61.6	0.26	Cheraw a†	94	56	76.3	2.58
Vernonia*	82	42	55.0	1.92	Chester†	.....	10.73	4.44	.....
West Fork**	98	40	59.4	1.00	Effingham†	.....	7.71	.....	.....
Weston	86	35	58.0	0.28	Evergreen†	93	55	73.9	6.07
Pennsylvania.	.....	.....	.....	Flin Hill†	92	57	75.9	4.89	
Altoona	94	53	73.6	2.94	Florence†	95	60	78.4	12.61
Aqueduct*†	100	52	72.4	3.83	Georgetown†	.....	12.40	.....	.....
Blooming Grove*†	100	54	68.5	1.20	Greenville†	86	54	71.4	6.66
Blue Knob	96	48	70.8	2.93	Hardeeville†	92	72	55.6	1.57
Brookville†	91	54	69.7	2.49	Kingatree†	93	61	77.2	8.08
Browers Lock	.....	2.22	.....	Kitchens Mills†	95	53	67.8	5.31	
Carlisle†	100	48	69.3	3.42	Longshore†	93	58	76.0	5.31
Chambersburg†	72.4	1.80	.....	McCormick*†	94	55	75.5	2.32	
Clarion†	.....	6.50	.....	Marion†	93	58	75.7	6.22	
Coatesville†	98	50	70.2	3.93	Martins	.....	10.65	.....	.....
Confluence†	.....	2.89	.....	Mount Carmel†	.....	4.74	.....	.....
Coopersburg†	93	49	68.3	2.86	Nichols†	.....	5.67	.....	.....
Corry	97	42	67.3	5.61	Pinopolis*†	85	66	73.6	11.72
Davis Island Dam†	.....	3.12	.....	Port Royal*†	92	69	80.0	8.64	
Doylestown	.....	2.98	.....	Saint Georges†	92	56	75.7	7.82	
Driftont	94	38	64.1	1.70	Saint Matthews†	93	63	77.6	8.38
Du Bois†	.....	4.10	.....	Stephens†	.....	10.65	.....	.....
Dyberry†	95	40	66.0	3.06	Sedalia†	91	64	75.2	5.57
East Mauch Chunk	99	44	69.6	1.54	Simpsonville†	93	59	76.6	6.36
Edinboro*†	97	49	70.2	1.66	Society Hill†	91	58	74.8	5.55
Emporium	86	50	68.0	.....	Spartanburg†	92	60	74.7	8.24
Fks of Neshaminy†	93	44	68.3	4.83	Statesburg†	89	68	74.6	7.27
Frederick	.....	5.28	.....	Tillers Ferry†	.....	5.80	.....	.....
Freeport†	.....	3.91	.....	Trenton*†	88	68	78.2	7.26	
Gettysburg†	.....	3.26	.....	Trial†	91	56	76.3	10.67	
Girardville†	94	41	68.7	2.17	Vance†	.....	76.4	7.64	.....
Grampian*†	94	50	69.0	2.25	Wateree†	.....	8.76	.....	.....
Greensboro†	.....	1.58	.....	Watts†	92	57	75.6	5.61	
Hamburg	100	47	71.8	1.63	Yorkville†	89	57	74.6	7.05
Hollidaysburg†	98	40	69.4	1.61	Younger Island†	96	59	80.3	7.36
Honesdale†	89	49	67.4	2.20	South Dakota.	.....	.....	.....	.....
Huntingdon†	98	43	68.9	2.37	Aberdeen†	104	42	70.4	1.29
Johnstown†	95	45	70.3	2.02	Alexandria†	91	52	71.0	2.64
Kennett Square*	.....	68.7	3.46	Franklin†	104	42	71.0	2.99	
Kilmers*	99	59	72.0	2.52	Waterloo†	97	42	71.0	2.99
Lancaster	95	52	70.5	4.25	Watts†	95	57	75.6	3.25
Lansdale	.....	3.21	.....	Wells	.....	6.00	.....	.....
Lebanon†	98	49	70.9	2.21	Woodstock†	99	65	79.0	4.71
Le Roy†	94	50	67.8	1.96	Virginia.	.....	.....	.....	.....
Lewisburg	96	45	70.3	4.36	Abingdon†	.....	.....	.....	.....
Ligonier	94	42	68.6	3.67	Alexandria†	96	53	73.2	1.35
Lock Haven†	100	45	70.4	2.51	Ashland†	93	50	71.9	5.98
Lock No. 4†	.....	2.90	.....	Avon†	97	50	71.5	3.74	
Lycippus†	88	58	68.0	3.75	Bedford City†	91	55	72.0	3.94
McConnellsburg†	97	45	69.3	1.87	Bellfonte†	95	67	80.5	4.63
Mahoning†	.....	4.52	.....	Beloit†	97	49	74.1	1.67	
Meadville†	92	45	68.2	3.31	Boerne*†	95	65	77.0	4.00
Newcastle†	95	40	73.5	4.38	Childress†	107	44	79.3	1.25
Oil City†	.....	3.99	.....	College Station	100	63	80.6	3.50	
Ottaville	.....	3.92	.....	Colorado D†	104	70	86.6	0.00	
Parker†	.....	6.41	.....	Columbus†	95	67	80.6	4.48	
Philadelphia b	98	53	72.2	3.60	Corsicana a†	101	59	80.5	5.06
Philadelphia c	98	52	72.0	3.24	Corsicana b†	96	58	79.4	3.78
Phoenixville	97	51	70.9	2.49	Cuero†	98	60	78.6	5.12
Point Pleasant	.....	4.99	.....	Dallas a†	97	62	79.0	4.72	
Pottstown	98	51	72.9	3.04	Dallas b†	96	65	79.0	4.71
Quakertown†	98	43	68.6	2.21	Devine†	96	58	80.1	0.52
Reading†	.....	2.40	.....	Durham†	.....	6.66	.....	.....
Ridgway†	.....	2.64	.....	Duval†	100	68	82.9	0.55	
Saegestown	91	42	67.3	3.25	Eagle Pass†	.....	.....	0.00	.....
Salem Corners†	92	48	68.3	1.80	Fallston†	97	58	80.4	2.12
Plankinton†	95	44	69.7	2.60	Fayette†	95	63	76.5	0.70
Rosebud†	106	38	70.4	1.69	Fay†	97	50	84.5	0.45
Hightmore†	99	41	71.8	2.32	Flower Bluff†	88	74	81.4	3.12
Gainesville†	93	45	71.8	2.10	Forestburg†	100	57	77.0	3.74
Midland†	108	38	73.1	2.33	Fredericksburg†	94	61	78.7	1.54
Faukton†	100	42	69.0	2.36	Gainesville†	100	53	76.6	2.30
Flandreau†	96	40	69.4	1.13	Graham†	104	54	80.8	4.30
Forestburg†	95	43	70.6	0.70	Grape Vine†	97	57	80.0	1.90
Fort Meade	105	41	69.2	1.63	Hallettsville†	99	58	78.2	3.33

Meteorological record of voluntary observers, &c.—Continued.

Stations.	Temperature. (Fahrenheit.)			Precip'n.	Stations.	Temperature. (Fahrenheit.)			Precip'n.	Stations.	Temperature. (Fahrenheit.)			Precip'n.	Stations.	Temperature. (Fahrenheit.)			Precip'n.	
	Max.	Min.	Mean			Max.	Min.	Mean			Max.	Min.	Mean			Max.	Min.	Mean		
Virginia—Cont'd.	80	60	70	Ins.	Wisconsin.	80	60	70	Ins.	Alabama.	80	60	70	Ins.	Toano b.	80	60	70	Ins. 0.00	
Richmond b†	.....	.....	.....	2.49	Amherst	93	38	67.4	2.65	Tuscaloosa†	.....	.....	.....	7.10	.....	.....	.....	.....	.....
Riverton†	.....	.....	.....	4.15	Ashland†	95	33	65.2	1.99	Alaska.	.....	.....	.....	.....	.....	.....	.....	.....	.....
Salem†	87	57	72.0	4.16	Baraboo†	91	50	60.0	2.56	Killianoo†	63	32	47.0	5.35	.....	.....	.....	.....	.....
Saluda†	95	50	73.5	2.45	Barron†	94	40	67.6	1.25	Bisbee†	91*	41	66.3	0.53	.....	.....	.....	.....	.....
Spottsville†	93	48	74.0	2.98	Bayfield	92	33	62.8	2.68	California.	.....	.....	.....	.....	.....	.....	.....	.....	.....
Blairdsville†	91	56	72.2	3.47	Beaver Dam	89	45	70.0	2.89	Aptos*	75	48	58.8	0.42	.....	.....	.....	.....	.....
Staunton†	92	50	69.6	3.89	Belleville	91	46	68.0	3.68	Napa City a*	87	44	62.0	0.33	.....	.....	.....	.....	.....
Stephens City†	99	51	74.2	3.99	Beloit†	91	50	70.0	4.34	Pt. Hueneme L. H.	.....	.....	.....	.....	.....	.....	.....	.....	.....
Warsaw†	95	54	73.4	1.93	Black River Falls†	96	45	69.6	1.78	Point Lobos	68	44	54.2	0.19	.....	.....	.....	.....	.....
W. Jodstock†	.....	.....	.....	2.85	Cadiz*	46	58.8	2.26	.....	Roe Island L. H.	.....	.....	.....	.....	.....	.....	.....	.....	.....
Washington,	.....	.....	.....	.....	Centralia	97	46	69.7	1.89	Talare a.	.....	.....	.....	.....	.....	.....	.....	.....	.....
Aberdeen†	88	40	54.0	5.10	Chippewa Falls†	.....	.....	.....	1.99	Yerba Buena L. H.	.....	.....	.....	.....	.....	.....	.....	.....	.....
Anacortes	.....	.....	.....	1.56	Columbus	94	40	70.0	3.07	Colorado.	.....	.....	.....	.....	.....	.....	.....	.....	.....
Bridgeport†	84	40	63.4	0.20	Crandon†	100	42	67.7	0.92	Box Elder	.....	.....	.....	2.18	.....	.....	.....	.....	.....
Centerville†	89	36	55.0	0.19	Derofo†	89	42	67.6	2.73	Idaho Springs†	76	17	46.0	0.41	.....	.....	.....	.....	.....
Chalah†	88	38	55.4	2.39	Eau Claire	95	46	70.0	0.66	South Creek	86	25	57.7	0.00	.....	.....	.....	.....	.....
Chelan†	86	41	61.2	0.21	Fond du Lac†	92	44	68.6	2.10	Idaho.	.....	.....	.....	.....	.....	.....	.....	.....	.....
Cifax†	79	35	56.1	0.62	Grantsburg†	97	42	68.4	2.20	Elk City*	88	42	64.9	2.94	Grand Turk Island	0.77
Davenport†	84	30	57.6	0.31	Harvey†	92	47	67.7	3.05	West Indies.	.....	.....	.....	.....	.....	.....	.....	.....	.....
Dayton†	85	35	58.8	0.36	Hayward†	99	43	69.0	1.25	Carthage.	.....	.....	.....	0.98	.....	.....	.....	.....	.....
East Sound†	78	46	57.8	1.30	Hillboro	92	45	67.6	2.16	Kansas.	.....	.....	.....	.....	.....	.....	.....	.....	.....
Elbe	.....	.....	.....	3.54	Janesville	89	40	66.9	2.50	Texas.	.....	.....	.....	.....	.....	.....	.....	.....	.....
Ferry†	89	38	56.6	3.01	Juneau†	92	46	68.8	3.98	Ochiltree†	.....	.....	.....	.....	.....	.....	.....	.....	.....
Fort Simcoe	80*	37	57.8	0.11	Koepnick†	96	50	71.9	1.50	Quanah†	107	35	70.4	5.25	.....	.....	.....	.....	.....
Fort Spokane	84	35	59.4	0.65	Lancaster†	92	53	70.6	2.39	Sherman†	94	44	67.0	1.53	.....	.....	.....	.....	.....
Fort Townsend†	84	40	52.6	1.31	Lincoln*	.....	.....	.....	2.20	West Indies.	.....	.....	.....	.....	.....	.....	.....	.....	.....
Madrone†	86	42	56.4	1.80	Madiano†	92	49	68.9	6.69	Carthage.	.....	.....	.....	0.98	.....	.....	.....	.....	.....
Moze Valley†	87	35	62.1	0.12	Manitowoc†	84	42	62.2	1.37	Elkhorn†	88	47	67.5	4.22	Elkhorn†	88	47	67.4	2.44
Olga†	80	45	55.5	1.73	Meadow Valley†	97	40	70.4	1.37	Ella†	92	53	70.2	1.37	Shawano	92	41	67.4	1.04
Pine Hill*	83	48	59.4	0.16	Oconto†	91	39	66.9	0.80	Shell Lake	98	43	70.2	2.39	Waukesha†	90	48	69.2	1.65
Pomeroy†	81	44	61.0	0.13	Osceola†	99	36	71.8	2.08	Sparta b†	95	39	69.2	1.09	Waukesha†	90	45	70.8	1.58
Pullman†	79	31	55.2	0.13	Stevens Point†	94	49	68.2	1.64	Valley Junction†	92	44	67.2	0.97	Kingwood*	90	45	65.2	2.54
Rosalia†	78	33	54.5	0.49	Watertown†	91	40	64.8	3.06	Viroqua	89	49	68.0	1.26	Marlinton†	90	45	67.2	5.80
Silver Creek*	86	40	55.0	3.50	Westfield†	92	46	65.9	1.90	Westfield†	92	46	65.9	1.90	Martinton†	90	45	67.2	5.80
Tacoma†	89	40	56.6	2.31	Weston*	94	40	71.4	2.84	Wyoming.	.....	.....	.....	.....	.....	.....	.....	.....	.....
Union City††	80	45	56.8	3.39	Whitehall†	96	44	70.5	0.55	Big Horn Ranch†	82	27	53.2	1.51	Big Horn Ranch†	82	27	53.2	1.51
Waterville†	82	33	56.0	0.23	Camp Pilot Butte	92	30	62.2	0.40	Fort McKinney	94	36	63.6	0.79	Fort Washakie	90	33	61.1	0.63
West Virginia.	Fort Washakie	90	33	61.1	0.63	Fort Yellowstone	80	22	54.6	0.38	Lander	88	32	62.3	1.06
Bluefield†	87	48	66.2	6.41	Idaho.	Laramie b.	85	28	57.2	0.54	Lander	88	32	62.3	1.06
Buckhannon a†	Idaho.	Lusk†	96	30	58.2	0.59	Barataria†	85	31	58.2	0.80
Buckhannon b†	88	47	68.4	2.72	Monterey	96	47	71.0	2.45	Monterey	96	34	61.4	0.88	Sheridan	94	32	61.4	0.88
Central Station*	94	59	77.0	4.18	Prairie du Chien	89	44	66.6	3.93	Port Washington	94	36	63.6	0.79	Spokane	96	34	62.1	1.75
Charleston a†	Reedsburg†	92	48	68.6	1.39	Rockville, Ont.	90	47	67.5	4.22	Spokane	96	34	62.1	1.75
Davis†	88	40	63.0	2.82	Sharon†	90	47	67.5	4.22	Kingston, Ont.	29.65	29.60	29.65	0.02	Charleston a†	94	32	61.4	0.88
Elkhorn†	88	49	69.4	5.23	Shawano	92	41	67.4	1.04	Toronto, On.	29.60	29.57	29.60	0.01	Charleston a†	94	32	61.4	0.88
Ella†	92	53	70.2	3.53	Shell Lake	98	43	70.2	2.39	White River, Ont.	29.60	29.57	29.60	0.01	Charleston a†	94	32	61.4	0.88
Fairmont†	88	50	70.0	4.18	Sparta b†	95	39	69.2	1.09	Port Stanley, Ont.	29.56	29.53	29.56	0.01	Charleston a†	94	32	61.4	0.88
Glenville†	89	50	70.0	4.18	Stevens Point†	94	49	68.2	1.64	Saugeen, Ont.	29.56	29.53	29.56	0.01	Charleston a†	94	32	61.4	0.88
Grafton†	90	49	69.8	4.05	Valley Junction†	92	44	67.2	0.97	Parry Sound, Ont.	29.56	29.53	29.56	0.01	Charleston a†	94	32	61.4	0.88
Harpers Ferry†	Port Arthur, Ont.	29.56	29.53	29.56	0.01	Winnipeg, Man.	28.97	29.78	28.97	0.07	Charleston a†	94	32	61.4	0.88
Hinton†	Kingston, Ont.	29.65	29.60	29.65	0.02	Minnedosa, Man.	28.60	29.75	28.60	0.07	Charleston a†	94	32	61.4	0.88
Kingwood*	90	45	65.2	2.54	Whitefish River, Ont.	29.60	29.57	29.60	0.01	Charleston a†	94	32	61.4	0.88	Charleston a†	94	32	61.4	0.88
Martinton†	87	40	67.2	5.80	Winnipeg, Man.	28.97	29.78	28.97	0.07	Charleston a†	94	32	61.4	0.88	Charleston a†	94	32	61.4	0.88
Morganatown†	95	54	71.0	1.96	Whitefish River, Ont.	29.60	29.57	29.60	0.01	Charleston a†	94	32	61.4	0.88	Charleston a†	94	32	61.4	0.8	

Table of miscellaneous meteorological data for June, 1893—Weather Bureau observations.

Districts and stations.	Elevation above sea-level, feet.	Length of record, years.	Pressure, in inches.	Temperature of the air, in degrees Fahrenheit.						Humidity and precipitation.						Wind.						Mean temperature data since opening of station.													
				Mean pressure, 8 a. m. and 8 p. m. + z.	Mean reduced.	Departure from normal.	Mean max. and min., + z.	Departure from normal.	Maximum.	Date.	Mean maximum.	Minimum.	Mean minimum.	Greatest daily range.	Mean temperature of the dew-point.	Mean relative humidity, per cent.	Precipitation, in inches.	Departure from normal.	Days with .01 or more.	Total movement, miles.	Prevailing direction.	Maximum velocity, miles per hour.	Date.	Clear days.	Partly cloudy days.	Cloudy days.	Average cloudiness, tenths.	Highest for month.	Year.	Lowest for month.	Year.				
<i>New England.</i>				62.8	-0.2		56.0	+0.7	83	20	64	42	1	47	35	49	84	2.45	-0.8	4,645	BW.	36	6.	15	7	12	11	6.1	57.6	1883	52.6	1881			
Eastport	53	21	29.96	30.02	+ .09		60.5	-1.8	92	20	67	46	17	54	30	54	82	3.62	+ 0.2	5,180	B.	23	6.1	9	13	5.9	66.8	1884	60.5	1893					
Portland	103	22	29.90	30.00	+ .06		66.0	+0.9	93	20	76	46	26	56	35	55	72	1.61	-1.0	5,346	se.	19	20	11	8	11	5.5	69.0	1892	63.1	1890				
Manchester	247	7	29.75	30.01	+ .06		65.0	+3.9	89	21	77	43	8	53	37	56	75	2.07	-2.0	5,222	s.	33	11	5	15	7	5.7	65.0	1893	60.6	1890				
Northfield	872	7	29.09	30.00	+ .07		64.8	-1.1	94	20	72	51	1	56	26	56	63	2.20	-1.1	5,841	o.	30	22	13	9	13	5.6	69.6	1894	60.6	1881				
Boston	125	23	29.89	30.03	+ .07		59.7	-0.9	87	20	66	46	1	54	28	55	84	2.26	-0.4	9,766	sw.	35	16	8	9	13	6.0	63.6	1889	59.7	1893				
Nantucket	14	7	30.00	30.01	+ .03		61.4	-1.1	82	20	67	50	1	56	27	55	72	2.61	-0.2	7,158	sw.	35	18	10	9	13	5.7	65.6	1880	60.4	1881				
Woods Hole	16						64.7	-1.4	90	20	73	44	1	56	31	55	72	2.06	-0.3	10	.....	.....	10	6	14	....	68.4	1889	63.4	1887			
Vineyard Haven	7						60.7	-0.9	86	20	66	47	24	56	25	57	90	1.61	-1.5	6,986	sw.	46	23	6	13	11	5.9	64.4	1883	60.0	1881				
Block Island	27	13	29.99	30.02	+ .03		63.6	-1.0	92	20	71	44	1	56	30	55	72	2.57	+ 0.1	12	.....	.....	13	4	13	....	67.8	1892	62.6	1886			
Narragansett Pier	12						66.4	+1.1	96	20	74	48	2	58	27	60	83	2.07	-1.2	5,258	ne.	25	BW.	6	9	9	12	5.6	72.2	1870	62.4	1881			
New Haven	107	21	29.89	30.00	+ .01		66.4	+0.6	95	20	71	49	1	57	32	58	82	3.60	-0.2	12	4,473	se.	24	8	9	13	5.9	68.1	1880	62.0	1881				
New London	47	23	29.96	30.01	+ .02		71.7	+ 0.8	92	20	80	51	8	61	30	60	74	2.92	-0.9	9,466	s.	38	BW.	11	10	14	6	4	9	72.5	1884	65.0	1878		
<i>Mid. Atlantic States.</i>							70.0		98	20	81	48	29	59	37	55	72	3.05	9	.....	e.	.....	3	15	12	....	....	....	....	....	....	....	....
Albany	85	20	29.91	30.00	+ .05		70.5	+2.7	95	20	80	51	8	61	30	60	74	2.66	0.8	8,626	ne.	40	28	6	16	8	5.9	72.0	1892	64.2	1881				
New York, N. Y.	185	23	29.82	30.02	+ .03		69.4	-1.1	96	20	77	53	2	62	28	59	76	2.46	-0.2	13	4,293	e.	24	W.	21	19	7	13	5.5	72.5	1892	68.5	1889		
Harrisburg	377	5	29.62	30.02			71.0		96	20	80	54	8	62	30	62	76	3.07	-0.2	8	6,901	ne.	26	BW.	6	6	18	6.0	74.5	1892	67.1	1881			
Philadelphia	117	23	29.89	30.01	+ .01		72.2	+0.9	98	20	81	55	1	63	30	60	76	1.57	-1.6	10	7,488	sw.	36	ne.	17	10	14	6	5.0	69.5	1880	64.7	*		
Atlantic City	53	20	29.96	30.01	+ .02		66.8	+0.2	90	20	73	51	29	61	21	62	82	4.58	-0.7	10	.....	.....	10	10	14	6	4	9	76.1	1870	69.9	1886	
New Brunswick							70.0		98	20	81	48	29	59	37	55	72	2.26	-1.8	4,867	e.	28	BW.	22	9	11	10	14	7	4	47.7	2	1890	69.9	1886
Baltimore	179	23	29.82	30.01	+ .01		72.4	+0.1	95	20	81	57	1	64	26	62	74	1.81	-2.5	11	3,817	e.	26	BW.	22	11	11	6	5	0	77.5	1874	69.1	1886	
Washington, D. C.	112	23	29.91	30.02	+ .01		72.5	+1.0	95	20	82	54	9	64	29	62	73	7.62	-3.9	8	.....	.....	17	7	6	....	76.3	1874	70.1	1886			
Cape Henry	20						73.6	-1.1	94	5	81	58	17	66	28	55	72	3.81	-0.2	2,693	sw.	35	BW.	22	8	13	9	5.8	77.4	1874	70.5	1886			
Lynchburg	685	23	29.32	30.03	+ .01		73.6	-0.6	92	19	83	57	9	64	28	64	76	3.81	-0.2	1,727	se.	16	12	11	6	5	5	80.1	1890	72.8	1878				
Norfolk	57	23	29.96	30.03	+ .00		73.9	+0.4	93	20	82	59	20	66	28	67	83	6.79	-1.7	5,884	se.	32	nw.	17	10	16	4	4.8	78.9	1876	71.3	1886			
<i>S. Atlantic States.</i>							75.0	+ 0.8	92	12	87	62	10	68	27	55	72	5.48	-0.7	4,229	sw.	24	n.	22	10	11	9	5.4	80.2	1890	70.7	1884			
Charlotte	773	15	29.23	30.02	- .01		74.2	-1.6	90	19	84	56	9	64	26	62	75	5.48	-0.7	6,078	se.	30	BW.	15	12	8	10	11	5.5	80.4	1890	77.4	*		
Hatteras	11	13	30.03	30.04	+ .01		73.3	-0.2	86	20	76	62	10	68	17	68	80	5.23	-0.2	9,435	ne.	42	W.	17	13	10	7	4	47.7	2	1890	72.4	*		
Kittyhawk	9	19	29.99	30.00	- .01		72.4	-1.2	92	20	78	62	1	67	21	65	80	2.63	-2.3	9,332	ne.	40	W.	17	20	4	6	3	6	78.7	1890	79.7	1878		
Raleigh	388	7	29.62	30.03	- .00		74.2	-0.6	91	19	83	57	9	65	28	65	77	4.15	-1.3	11	3,734	sw.	30	BW.	22	8	11	11	5	9	78.6	1890	73.6	1889	
Southport	34	18	29.99	30.02	- .01		74.9	-1.3	92	20	86	59	10	70	18	70	83	5.70	-1.9	7,249	sw.	35	se.	16	12	11	6	5	5	80.1	1890	75.6	1884		
Wilmington	78	23	29.95	30.03	- .00		75.6	-0.9	90	20	83	60	9	68	21	69	83	5.58	-0.5	5,532	se.	30	se.	16	6	18	6	5	5	80.1	1890	75.6	1884		
Charleston	52	23	29.99	30.04	- .00		77.8	-1.0	94	20	84	66	2	71	23	69	77	16	5.11	-11.2	5,695	se.	54	se.	16	12	11	7	5	8	82.2	1890	75.6	1884	
Columbia							77.5	-0.6	95	12	87	62	10	68	27	60	75	8.53	-0.4	5,054	se.	34	se.	16	12	11	8	9	13	81.4	1890	76.8	1889		
Fort Hill	209	22	29.17	30.05	- .00		73.4	-1.6	90	17	84	56	11	63	33	64	79	6.41	-1.4	3,713</															

Table of miscellaneous meteorological data for June, 1893—Weather Bureau observations—Continued.

Districts and stations.	Elevation above sea-level, feet.	Length of record, years.	Pressure, in inches.		Temperature of the air, in degrees Fahrenheit.						Humidity and precipitation.						Wind.				Mean temperature data since opening of station.								
			Mean pressure, 8 a.m. and 8 p.m. + 2.	Mean reduced.	Departure from normal.	Mean max. and min. + 2.	Departure from normal.	Maximum.	Date.	Mean maximum.	Minimum.	Greatest daily range.	Mean temp. of the dew-point.	Mean relative humidity, per cent.	Precipitation*, in inches.	Departure from normal.	Days with 0.1 or more.	Total movement, miles per hour.	Prevailing direction.	Miles per hour.	Cloudy days.	Average cloudiness, tenths.	Highest for month, Year.	Lowest for month, Year.					
<i>Ex. Northwest—Con.</i>																													
Fort Buford.	1,899	15	27.84	29.80	— .04	63.8	— 2.7	92	13	76	43	16	51	39	46	57	1.84	— 1.4	17	6,855	W.	56	W.	23	11	5	14	5-5-69-5 1884	57.6 1891
<i>Upper Miss. Valley.</i>																	5.75	— 1.84											
Minneapolis.																	1.83	— 1.84											
Red Wing.																	1.83	— 1.84											
Saint Paul.	758	...	29.11	29.90	— .00	71.3	— 4.1	94	13	81	48	6	62	31	58	64	2.00	— 2.5	6	6,370	S.	50	W.	21	9	17	4	... 4-5-73-0 1873	63.3 1875
La Crosse.	730	21	29.19	29.94	+ .02	71.5	— 4.2	93	12	82	54	22	62	27	58	64	2.31	— 2.2	7	4,822	S.	25	S.	8	13	8	9	4-5-73-0 1873	64.4 1889
Davenport.	613	22	29.29	29.93	— .03	73.0	— 2.5	93	12	81	51	6	63	26	61	73	3.52	— 0.6	12	5,500	E.	36	SW.	21	10	11	9	5-1-77-7 1873	67.0 1889
Des Moines.	369	15	29.03	29.94	— .02	71.4	— 1.0	90	13	81	47	6	63	33	61	74	4.69	— 1.2	13	4,725	S.	33	S.	11	12	7	11	4-9-73-2 1890	67.5 1883
Dubuque.	651	20	29.26	29.94	— .00	71.8	— 3.2	92	13	81	52	6	63	26	62	74	5.49	— 0.2	6	3,250	S.	25	W.	8	9	12	9	5-1-73-6 1890	66.2 1889
Keokuk.	613	22	29.31	29.95	+ .01	73.2	— 2.5	92	12	82	54	6	64	24	62	71	2.37	— 2.6	10	3,884	N.W.	36	SW.	21	12	12	6	4-3-77-8 1873	68.3 1889
Cairo.	359	22	29.61	29.99	+ .02	74.3	— 0.3	89	11	83	60	7	67	21	64	73	7.59	— 3.1	2	4,639	S.	36	SW.	20	10	15	5	5-0-76-0 1890	70.8 1889
Springfield, Ill.	644	14	29.30	29.97	— .00	72.8	— 2.0	92	12	82	54	6	63	27	61	68	1.99	— 3.4	11	5,338	S.	30	SW.	4	10	15	5	5-0-76-0 1890	67.7 1889
Hannibal.	534	...	29.39	29.95	— .00	72.8	— 2.0	92	12	82	50	7	63	28	62	71	5.19	— 0.2	11	5,400	S.	48	W.	21	8	18	4	4-7	... 4-7 1890
Saint Louis.	571	23	29.37	29.97	+ .01	75.2	— 0.9	93	19	84	58	6	67	23	64	70	3.49	— 1.5	13	6,573	S.	50	W.	21	15	11	4	3-5-79-7 1871	70.6 1889
<i>Missouri Valley.</i>																5.88	— 0.6												
Columbia.																6.83	— 1.8	13	3,777	S.E.	32	S.	19	13	12	5	4-1	... 4-1 1890	60.8 1889
Kansas City.	963	...	28.95	29.94	— .00	72.8	— 0.1	91	21	82	55	5	64	25	62	73	5.06	— 1.2	14	4,846	S.	27	S.	8	19	5	5-3-77-0 1890	70.8 1889	
Springfield, Mo.	1,350	3	28.50	29.95	— .01	71.8	— 1.3	90	24	81	51	6	62	23	62	75	4.40	— 1.2	10	5,844	S.	48	N.	21	8	19	3	4-6-75-6 1890	69.0 1889
Leavenworth.	857	23	29.06	29.96	+ .03	73.2	— 0.1	92	21	83	52	6	64	25	62	71	5.04	— 0.3	13	5,421	S.	45	SW.	23	8	13	9	5-9-77-0 1890	70.0 1878
Topeka.	7	...														5.40	— 1.1												
Omaha.	1,113	23	28.78	29.93	— .00	73.1	— 1.8	90	19	82	53	5	64	27	61	68	7.11	— 1.2	8	5,309	S.E.	30	S.	8	18	10	2	3-0-75-8 1871	66.7 1878
Valentine.	...	27.20	29.85	— .03	73.1	— 2.8	102	11	82	42	5	58	38	52	61	9.176	S.	48	N.	28	16	12	2	4-0-69-8 1893	63.7 1891				
Sioux City.	1,165	...	26.68	29.88	— .00	72.2	— 0.1	92	20	83	46	5	61	34	57	63	1.03	— 0.1	5	7,910	S.	48	N.W.	21	15	9	6	4-2	... 4-2 1893
Pierre.	1,470	...	28.29	29.80	— .00	73.7	— 3.9	103	11	84	45	5	65	37	55	59	1.73	— 1.8	10	7,603	S.	43	S.	13	26	11	3	3-5	... 3-5 1891
Huron.	1,310	12	28.48	29.83	— .07	70.2	— 3.9	97	11	84	44	5	65	41	55	62	0.67	— 3.0	6	11,445	S.	59	S.	7	14	14	2	3-7-70-2 1893	63.2 1892
Yankton.	1,322	20	28.59	29.86	— .01	71.9	— 1.9	93	11	83	45	6	66	34	57	62	4.22	— 1.1	6	7,718	S.	48	S.	7	17	6	7	3-6-72-8 1873	64.6 1877
<i>Northern Slope.</i>																5.78	— 1.1												
Havre.	2,477	11	27.28	29.84	— .02	59.3	— 3.0	89	10	72	36	29	46	45	42	57	1.20	— 1.8	12	7,132	W.	41	SW.	25	8	19	3	5-3-65-4 1886	58.0 1891
Miles City.	2,374	16	27.37	29.79	— .00	52.5	— 1.8	97	17	78	43	24	52	42	43	51	1.67	— 1.4	7	10,034	N.W.	42	W.	23	13	9	6	4-6-71-3 1881	61.6 1892
Helena.	4,118	14	25.77	29.92	+ 0.2	50.8	— 4.0	92	10	68	36	5	45	43	40	59	0.82	— 1.4	8	6,405	S.W.	45	SW.	28	11	13	6	4-7-63-4 1889	56.8 *
Rapid City.	3,260	9	26.53	29.80	— .02	68.0	— 4.7	103	18	81	42	6	55	47	44	48	1.21	— 2.7	10	7,310	N.	38	SW.	28	11	13	6	5-0-68-0 1893	58.1 1883
Cheyenne.	6,105	23	24.73	29.82	— .04	62.2	— 0.9	91	11	78	32	6	47	42	33	37	1.33	— 0.2	6	5,908	S.	30	S.	22	14	2	4-2-65-7 *	57.5 1883	
Lander.	5,377	...	24.00	29.85	— .00	60.1	— 0.1	88	17	77	32	3	43	51	32	40	1.05	— 0.1	3	4,424	W.	30	S.	12	24	4	2	2-2	... 2-2 1891
Kearney.	2,206	...	27.64	29.89	— .00	71.3	— 1.3	96	23	83	46	5	60	35	56	63	4.99	— 0.9	9	8,629	S.	44	SE.	7	13	12	5	4-0	... 4-0 1891
North Platte.	3,841	19	27.02	29.89	— .01	69.8	— 1.2	96	11	82	41	5	57	38	53	61	0.41	— 0.8	12	8,142	S.	38	S.	13	16	2	4-2-70-9 1891	64.3 1891	
<i>Middle Slope.</i>																1.93	— 0.4												
Colorado Springs.	6,069	13	24.02	29.88	— .00	64.1	— 0.2	93	20	79	34	5	49	45	35	41	0.40	— 0.6	7	7,060	B.	60	N.W.	26	14	13	3	3-7-68-9 1874	61.8 1878
Denver.	5,267	22	24.78																										

Chart I. Track

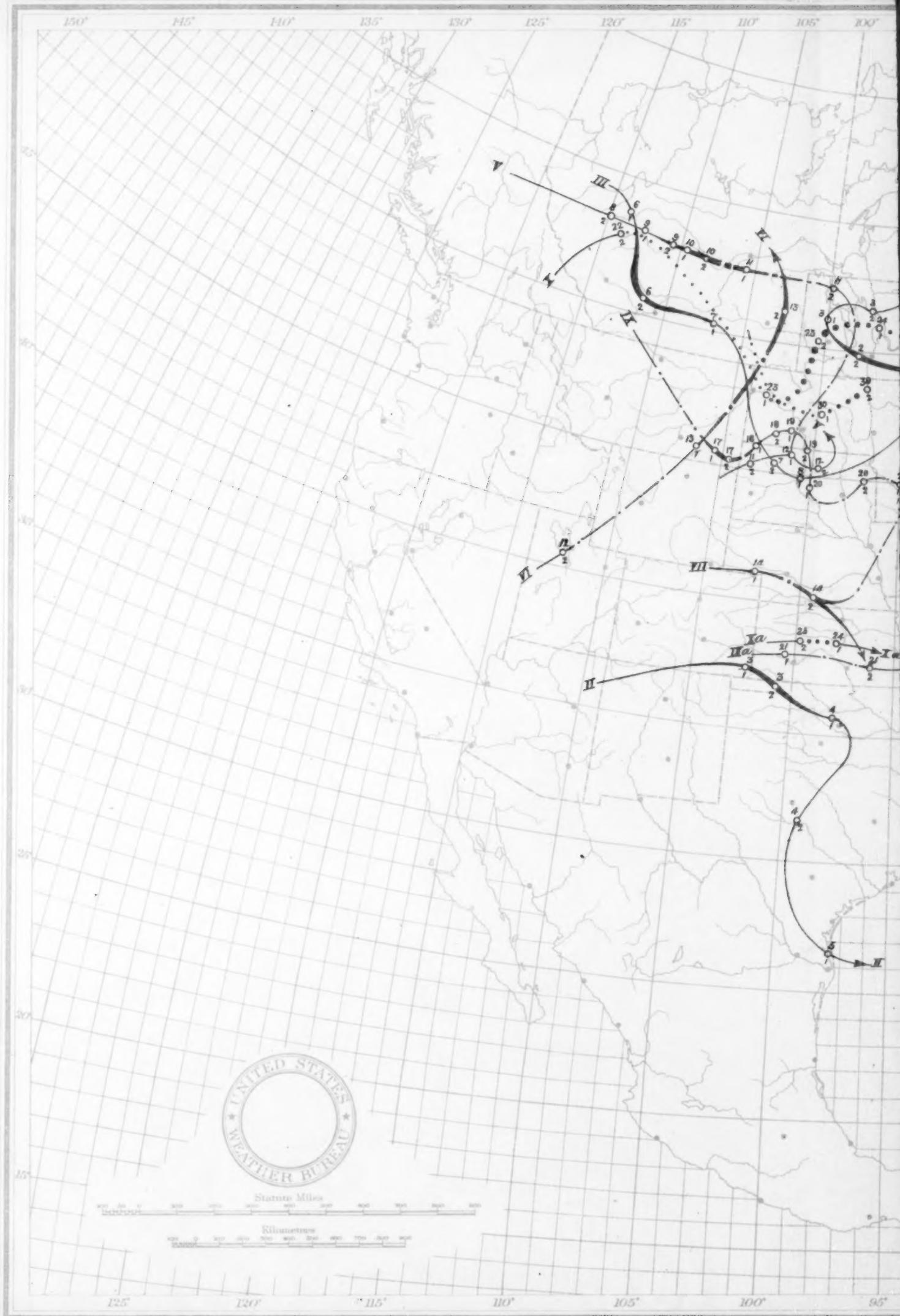


Chart I. Tracks of areas of Low Pressure. June, 1893.



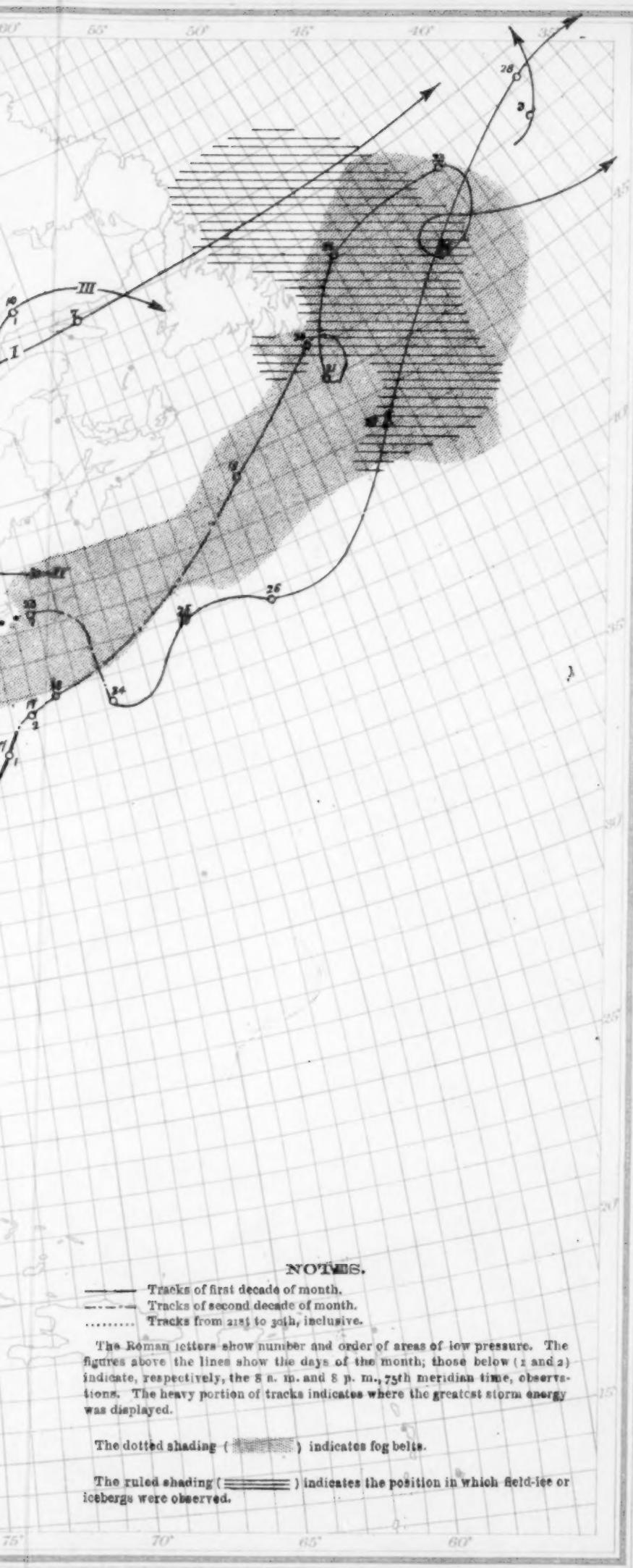
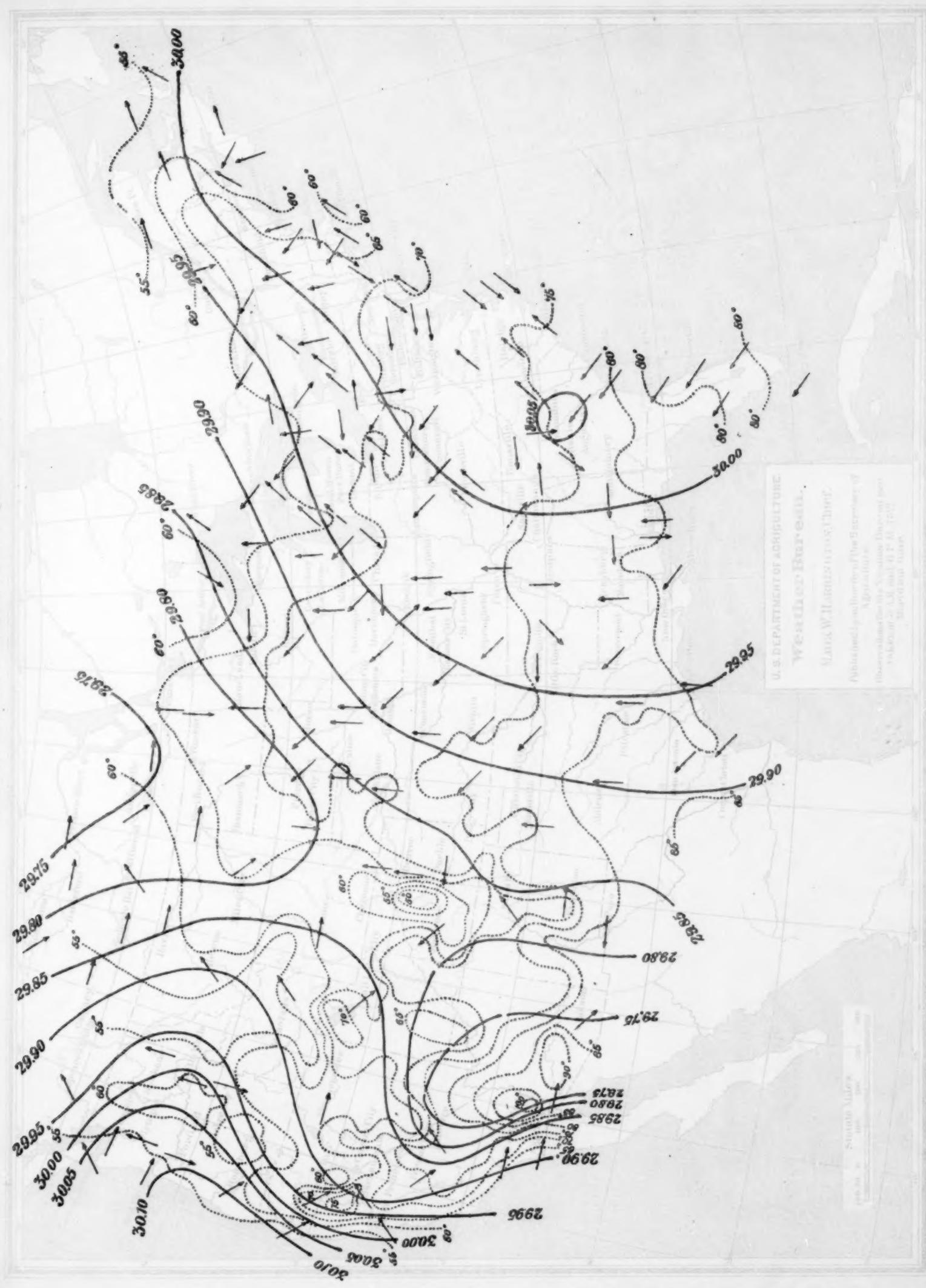


Chart II. Isobars, Isotherms, and Winds. June, 1893.



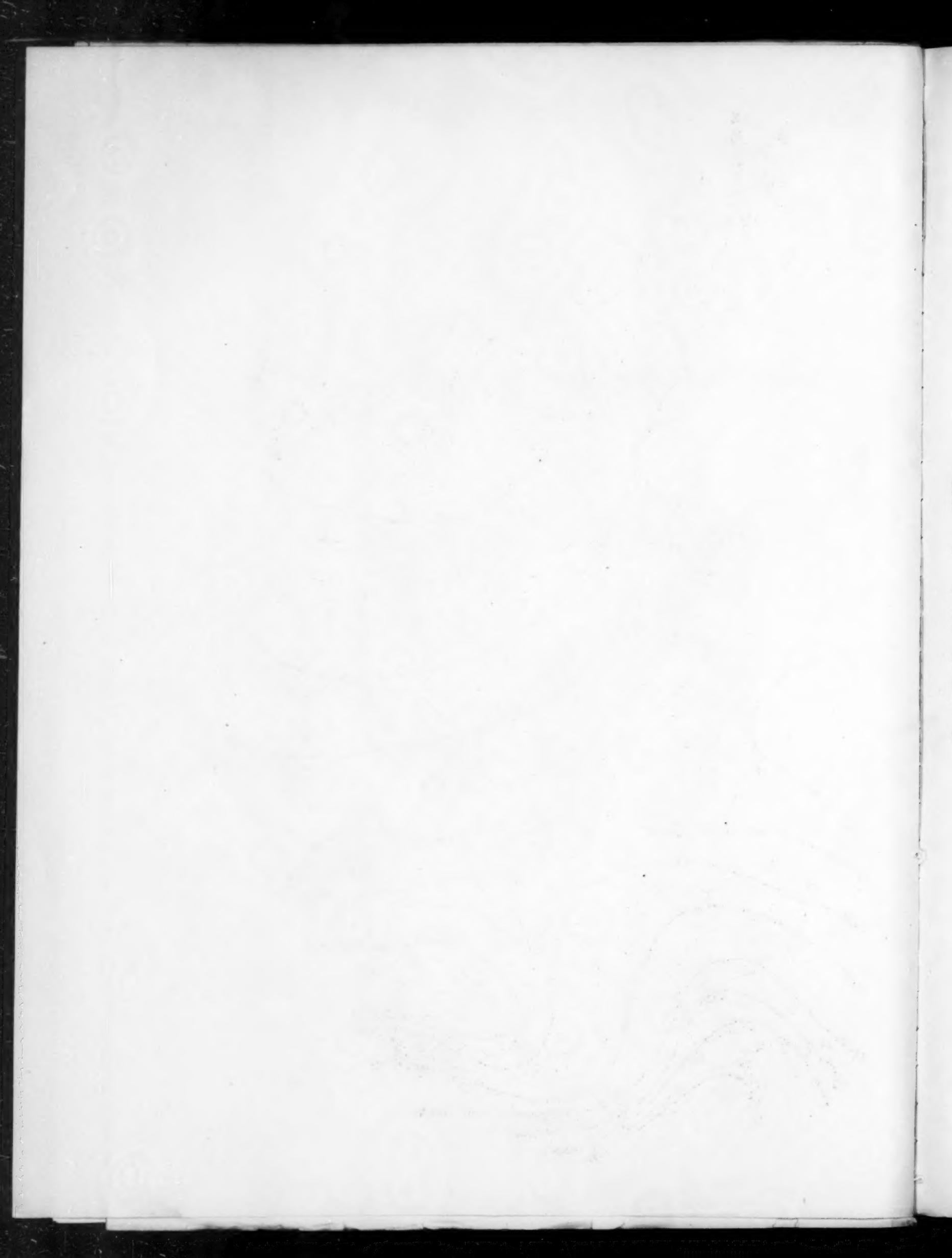


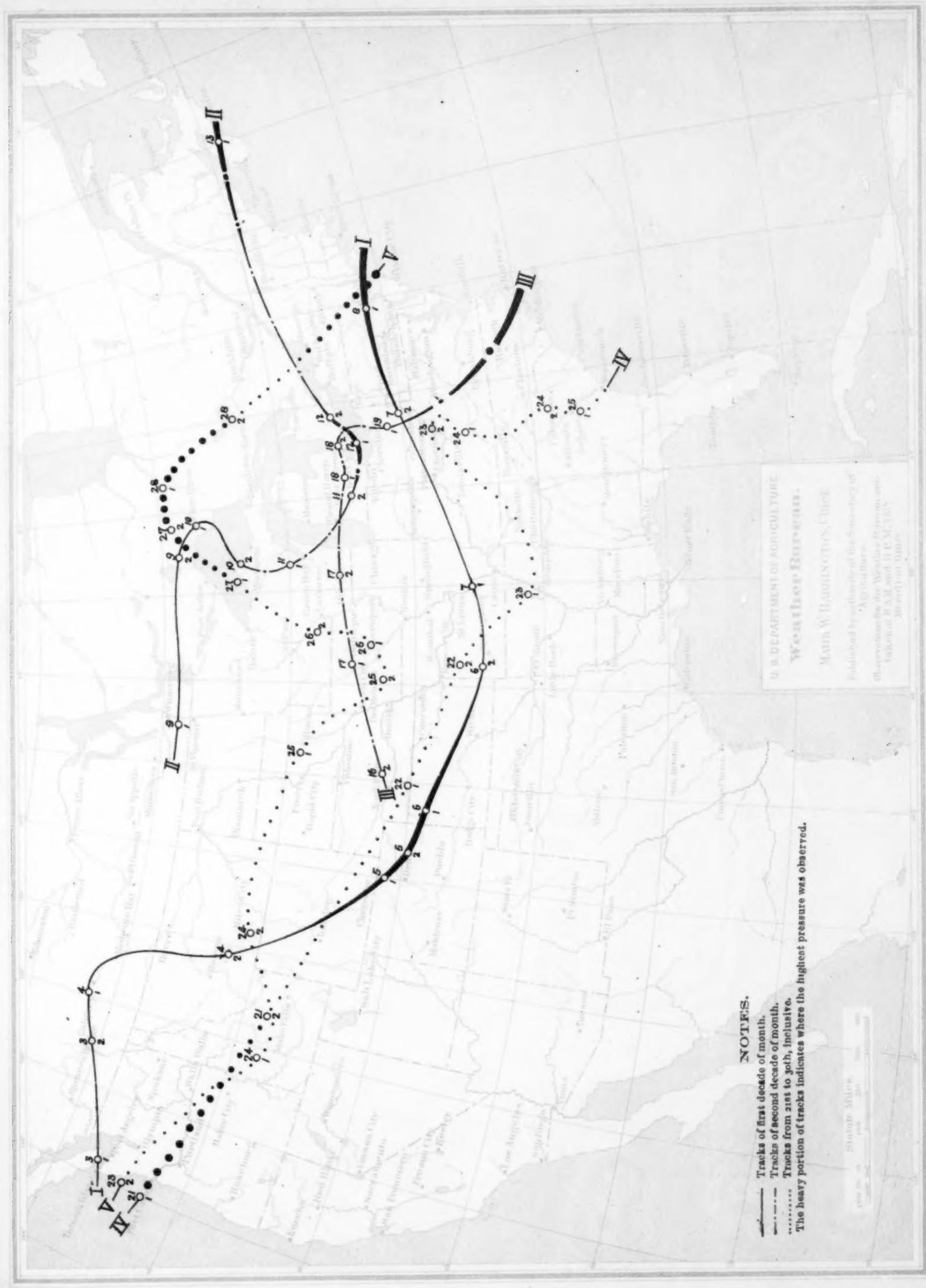
Chart III. Precipitation. June, 1893.



Chart IV. Tracks of areas of High Pressure. June 1893



Chart IV. Tracks of areas of High Pressure. June, 1893.



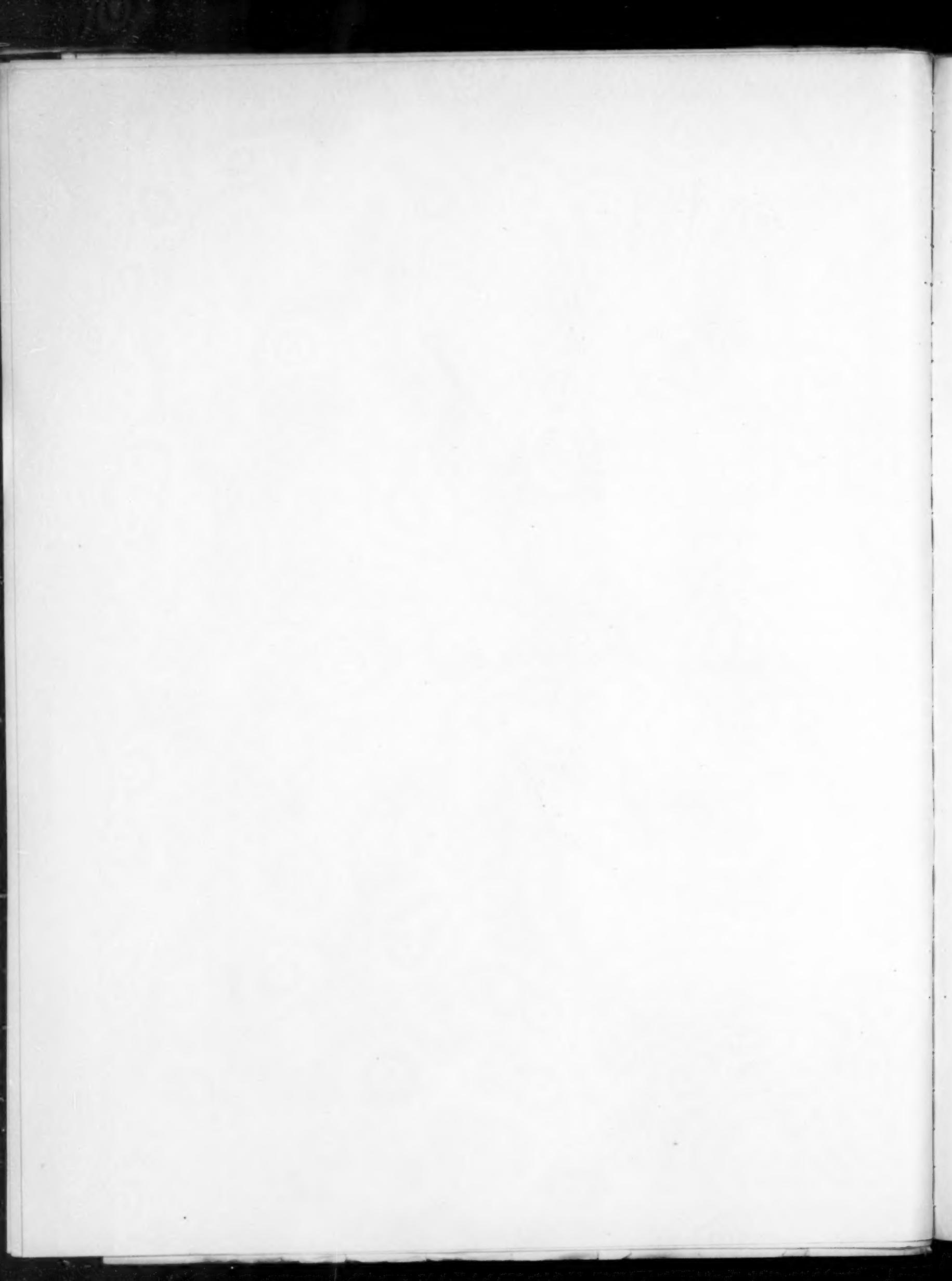
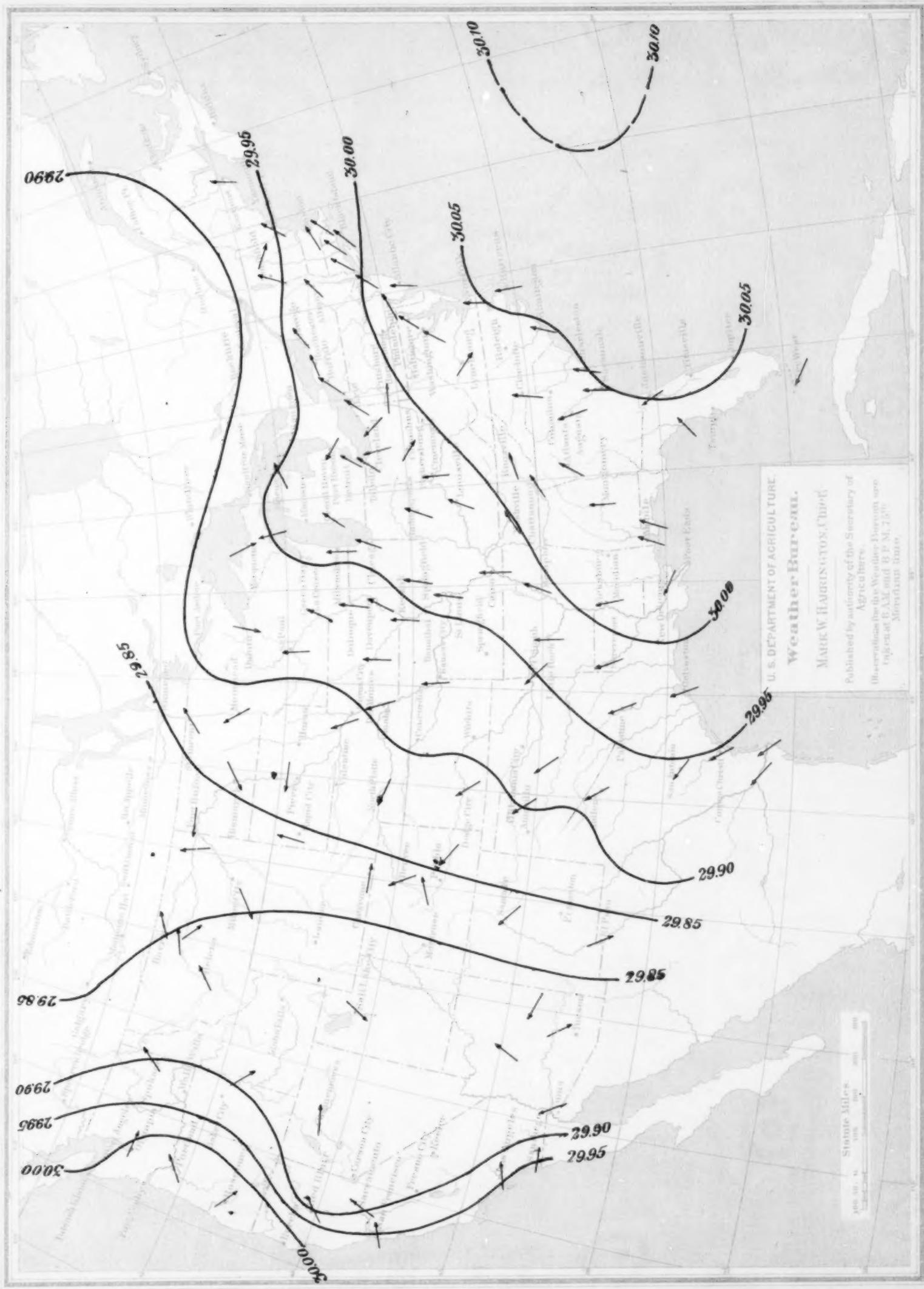
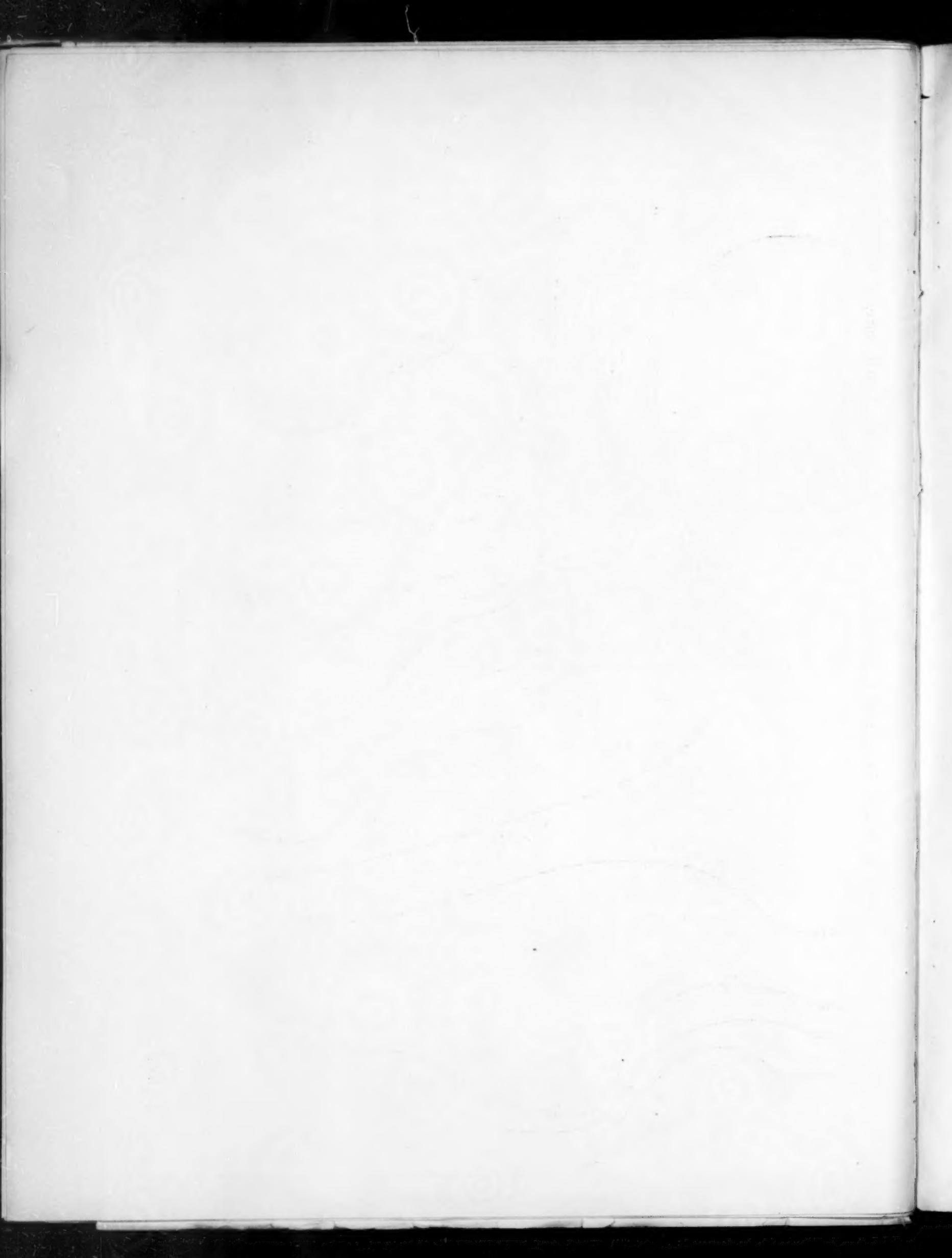


Chart V. Normal Pressure (20 years) and Average Wind Direction (15 years) for June.





List of voluntary observers of the Weather Bureau, who furnish meteorological reports for the Monthly Weather Review.

Alabama.	D D Ross (Chiracahua Mt) Tombstone Ariz	A P Robinson Conway Ark	J G Heald Cloverdale Cal	L D Palmer Needles Cal
John M Ackley Alco Ala	X Edward Vanderlip Crittenden Ariz	Jacob Brobst Corning Ark	John T Britton Colusa Cal	Sherman W Marsh Nevada City Cal
Prof P H Mell Auburn Ala	F A Fiege Dragoon Ariz	D H Hopkins Dallas Ark	D S Sartwell Crescent City Cal	C H Kellogg Newcastle Cal
Wm Fowler Bermuda Ala	George F Cook Dudleyville Ariz	Prof G L Teller Fayetteville Ark	A C Hillman Davisville Cal	B F Spencer Nordhoff Cal
B M Jacobs Birmingham Ala	Dr R B Tripp (Eagle Pass)	U G McLinden Gaines Landing Ark	W W Bliss Duarte Cal	Edw Llewelyn Oakdale Cal
W J Holland Brewton Ala	A T Colton Fort Thomas Ariz	W O Bartlett Hamburg Ark	Fred B Lemoin Drytown Cal	Director Chabot Obs'y Oakland Cal
W F Spurlin Camden Ala	Post Surgeon Florence Ariz	Post Surgeon U S A Hot Springs Ark	J A Edman (Edmonton)	W II Edwards (Orangevale)
Hon M L Stansil Carrollton Ala	Post Surgeon Fort Apache Ariz	C L Sampson Jonesboro Ark	Meadow Valley Cal	Folsom City Cal
Dr J G Michael Citronelle Ala	Post Surgeon Fort Bowie Ariz	Silas C Turnbo (Keesees Ferry Ark)	S Holland Evergreen Cal	L C Jacobs Oroville Cal
A M Valerio Daphne Ala	Post Surgeon Fort Grant Ariz	Mrs Isabella M Perrin Protom Mo	Fred E Fox Fall Brook Cal	G W Smith Palermo Cal
Chas M Fox Elba Ala	Post Surgeon Fort Huachuca Ariz	M F Locke Com of Agriculture	Mrs W H Robinson Florin Cal	H S Channing Pasadena Cal
James Milton Eufaula Ala	Thomas Kichey (Fort Mohave)	X Little Rock Ark	J H Sturges Folsom City Cal	Jas Singley Petaluma Cal*
Richard Smith Florence Ala	Mohave City Ariz	F H Clark Little Rock Ark	Post Surgeon Fort Bidwell Cal	G W Barlow Placerville Cal
M H Sellars Geneva Ala	D Murphy Gila Bend Ariz	W H Pyburn Lonoke Ark	N C Miller French Corral Cal	A G Platt Pleasanton Cal
M H Verby Greensborough Ala	D Rope Holbrook Ariz	Geo L Madding Madding Ark	C M Fitzgerald Georgetown Cal	John Hyslop (Point Lobos)
Dr John Gordon Healing Springs Ala	J W Stump (Mt Huachuca)	John W Stephens Marcella Ark	J J West Glendora Cal	San Francisco Cal
Samuel Jordon Highland Home Ala	Tombstone Ariz	A C Dixon Melbourne Ark	B F Berriman Grass Valley Cal	Adams Chapin Poway Cal
Prof J W A Wright Livingston Ala	Mrs E S Dodge Oracle Ariz	Capt Joseph Evans Mount Nebo Ark	Fred G Moesch Gridley Cal	L F Bassett Redding Cal
A M Weiler Lynn Ala	George W Wells (Oro) Clifton Ariz	A E Martin Palomas Ariz	Guinda Independent Guinda Cal	C M Hammond (Red Hill Ranch)
Thos Freeman Maple Grove Ala	G W Bonacker Payson Ariz	H W Adams Peoria Ariz	J H Curtiss Healdsburg Cal	Upper Lake Cal
T C Daniel Maysville Ala	Maj T W Hine Phœnix Ariz	Maj T W Hine Phoenix Ariz	E A Brush Hydesville Cal	Chas Aull Represa Cal
Wm Garrett Mount Willing Ala	Catharine E Langhorne Red Rock Ariz	M E Curry Rye Ariz	C W Craig Independence Cal	Kendall Holt Rialto Cal
Dr J Huggins Newbern Ala	W W Strohn Reymert Ariz	Gee P Scholefield (St Helena Ranch)	C F Macey (Iowa Hill)	J C Stanton Rio Vista Cal
L C Aday Newburgh Ala	M E Curry Rye Ariz	Pantano Ariz	Peter Hamilton Rogers Ark	W E Keith Riverside Cal
John C Killebrew Newton Ala	Gee P Scholefield (St Helena Ranch)	Post Surgeon San Carlos Ariz	Chas A Hinchee Searcy Ark	S H Gerrish 1517 G street Sacramento Cal
J W Clardy Oxanna Ala	Pantano Ariz	John McNeil Show Low Ariz	E L Buerkle Stuttgart Ark	J A Barwick Sacramento Cal
W N Horn Pushmataha Ala	H Kosland Signal Ariz	H Kosland Signal Ariz	A H Carrigan Washington Ark	Miss Elsie Ruhl (Dry Creek)
L B Thornton Tuscumbia Ala	D D Gowen care F H Nash	D D Gowen care F H Nash	Dr A Fouch Irvington Cal	Sacramento Cal
Wm H Miller Union Ala	Strawberry Ariz	H K Pettygrove Anderson Cal	T T Tidball Jolon Cal	Michael Gorman San Ardo Cal
P L Cowan Union Springs Ala	Miss Mamie Tevis Teviston Ariz	Miss Winifred S Fry Arcata Cal	Prof J W McLain Julian Cal	Dr A K Johnson San Bernardino Cal
B M Duggar Uniontown Ala	E L Wetmore Tucson Ariz	Riverside Trust Co Ltd Arlington Heights	J F Parks (Kennedy Gold Mine)	Max Frankenau Sanger Cal
Dr E P Nicholson Valley Head Ala	J C Hayden Tucson Ariz	W A Webster Bakersfield Cal	Jackson Cal	Dr L Gregory San Jacinto Cal
Alaska.	F W Heyne (Walnut Ranch)	G A Hatfield Barstow Cal	F H Porter (Kono Tayee)	Dr A C Simonton San Jose Cal
Jos Zuboff Killisnoo Alaska	Rucker Ariz	Armin O Leuschner Berkeley Cal	Lakeport Cal	Tribune San Luis Obispo Cal
H S Tibbey Coal Harbor (Via Sitka and Sand Point) Alaska	Post Surgeon Whipple Barracks	Biggs Argus Biggs Cal	Joseph Dominici La Grange Cal	Hugh D Vail Santa Barbara Cal
Dr J D Bluett Metlakatla Alaska (via Ketchikan Alaska)	C P Smith Wilgus Ariz	W C Jones sr Campo Seco Cal	Prof C D Perrine Lick Observatory	A Block Santa Clara Cal
Arizona.	Arkansas.	Wm Barry (Centreville)	Ezra Fiske Lodi Cal	W R Springer Santa Cruz Cal
Mrs J H Hamilton Antelope Valley	Lum Woodruff Ashdown Ark	Niles Cal	F H McCullagh Los Gatos Cal	L E Blochman Santa Maria Cal
(Via Stanton) Ariz	J E Scanlan Bee Branch Ark	Edwin Rhodes Chino Cal	Maurice Neuman Mariposa Cal	Crane Bros Saticoy Cal
S J Starmer (Ariz Canal Co's dam)	A L Morgan Calabasas Ariz	J F Beale Citrus Cal	Maxwell Mercury Maxwell Cal	E S Tomblin (Shasta Springs)
Rev J G Pritchard Bisbee Ariz		Pomona College Claremont Cal	Pentecost & Reed Middletown Cal	Mott Cal
J S Day Buckeye Ariz			J H Southwick Milton Cal	Robert Hall Sonoma Cal
E K Sykes Calabasas Ariz			C E Prindle Mokelumne Hill Cal	T G Brown Stockton Cal
			George North (Mt Glenwood)	T B Sanders Susanville Cal
			Winters Cal	E C Vorheis Sutter Creek Cal
			J S Mockabee Mountain View Cal	
			Wm H Martin Napa Cal	
			H P Aldrich Needles Cal	

List of voluntary observers of the Weather Bureau, etc.—Continued.

J E Boal (Sweetwater Dam) National City Cal	S W De Busk Downing Colo	J M Wadsworth Pagoda Colo	Rev Wm Goodwin New Hartford Conn	W L Jewett Ocala Fla
Austin Young (Tehachapi) Greenwich Cal	I W La Munyon Dumont Colo	Samuel Wade Paonia Colo	C H Lathrop North Franklin Conn	M O Dovel Orlando Fla
Julius Forrer Tulare Cal	Christen Jensen (East Dale Colo)	P K Barthell Parachute Colo	C H Truesdale North Grosvenor Dale Conn	W J Borden Oxford Fla
John Tuohy Tulare Cal	Costilla N Mex	H W Goodrich Red Cliff Colo	G C Comstock Norwalk Conn	Wiley Stinson Plant City Fla
P R McCabe Turlock Cal	Agent U P R R First View via Cheyenne Wells Colo	Dr G D Yokum Rico Colo	K B Loomis South Manchester Conn	J H Hamilton (St Andrews)
Dr Geo McCowan Ukiah Cal	E B Pierce Fort Collins Colo	Agent U P R R River Bend Colo	Storrs School Exp Sta Storrs Conn	St Andrews Bay Fla
C M Hammond Upper Lake Cal	Prof L G Carpenter Fort Collins Colo	F A Huntley B S A Rocky Ford Colo	Miss E D Larned Thompson Conn	Post Surgeon (St Francis Barracks)
W H Roscoe Upper Mattole Cal	Dr T H Breen Fruita Colo	C T Woods Saint Cloud Colo	Rev E Dewhurst Voluntown Conn	St Augustine Fla
G O Coburn Vacaville Cal	D D Bloom Garnett Colo	E C van Diest San Luis Colo	Mrs B F Harrison Wallingford Conn	Theodore G Maltby St Petersburgh Fla
Arthur L Webb Ventura Cal	J Horace McClelland (Gaynor) Fort Collins Colo	S J Capps Scissors Colo	N J Welton Waterbury Conn	Rev W H Carter Tallahassee Fla
A L Bancroft Walnut Creek Cal	Gen W J Palmer (Glen Eyrie) Colorado Springs Colo	W Knight Sedgwick Colo	S T Stockwell West Simsburg Conn	C D Webster Tarpon Springs Fla
A S Noyes West Butte Cal	Phil Weidemaier (Glen Eyrie) Colorado Springs Colo	John Ross Seibert Colo	Delaware.	Georgia.
Wm Lumbard Wheatland Cal	James Hitchings Gold Hill Colo	H T Green Sheridan Lake Colo	John S Jester Dover Del	Dr J P Bowdoin Adairsville Ga
A W Sehorn Willow Cal	Dr S M Bradbury Grand Junction Colo	G E Lake (Smoky Hill Mine)	Wm C L Carnagy Kirkwood Del	Prof L H Charbonnier Athens Ga
J M Case Winchester Cal	R W Guss Greeley Colo	Geo Polhill Boulder Colo	J Y Foulk Milford Del	Park Morrill Atlanta Ga
Dr D Ream Yreka Cal	J H Marshall Greenhorn Colo	F M Friend Springfield Colo	Rev Lewis W Wells Millsboro Del	Col A P Butler Care J J Dick & Bro
Sutter County Farmer Yuba City Cal	M A Bunker Grover Colo	Hon J H Crawford Steamboat Spring Colo	H L Wallace Seaford Del	Augusta Ga
Colorado.	Agent U P R R Agate Colo	C N C Evers (Sunnyside)	District of Columbia.	Prof D M Wade Blakely Ga
Miss M A Coles Abbott Colo	L O Stevens Akron Colo	Sunset Colo	M F Burrows cor 30th and M sts nw	C E Lee Brag Ga
Agent U P R R Agate Colo	W H Powless Alma Colo	Henry Kohler (Surface Creek)	Washington D C	Prof B P Gaillard Dahlonga Ga
Amos Binford (Avoca) Yuma Colo	P W Warnick Amherst Colo	Delta Colo	Officer in Charge Washington Aqueduct	R W Cornell Darien Ga
Agent U P R R Bennet Colo	T F Burke Arboles Colo	P Blumer (Thon) Elizabeth Colo	Washington D C	Wm W Kimzey (Diamond)
L A Rawlings Box Elder Colo	Amos Binford (Avoca) Yuma Colo	J R Pickett (T S Ranch)	Florida.	Roy Ga
Dr B A Arbogast Breckenridge Colo	Agent U P R R Bennet Colo	W P Quaintance Whitewater Colo	J Buzzell (Amelia)	Dr J T Chappell Dublin Ga
W E Garver Brush Colo	W H Powless Alma Colo	O R Thacher Twin Lakes Colo	J R Pickett (T S Ranch)	H A Roebuck Elberton Ga
Agent U P R R Byers Colo	Agent U P R R Bennet Colo	P G Bonewitz Vilas Colo	John D McAliley Bristol Fla	John Axtell Fleming Ga
W B Felton Canon City Colo	L A Rawlings Box Elder Colo	A Wallet Wallet Colo	Fred L Robertson Brooksville Fla	T G Scott Forsyth Ga
Hugh Taylor Castle Rock Colo	Dr B A Arbogast Breckenridge Colo	R Z Mason Ward District Colo	Dr J B Rosenberg Clermont Fla	C W Meaders Gillsville Ga
Miss L M Brooker Cheyenne Wells Colo	W E Culver Las Animas Colo	Agent U P R R Watkins Colo	H W O Margary Eustis Fla	T J Holden Hawkinsville Ga
Wm R Abbott Chivington Colo	H M Knight Lavender Colo	J W Glenn Wilde Colo	Chas Ingall Federal Point Fla	R L Rhodes Hephzibah Ga
G C Wortman Climax Colo	A G Wallihan (Lay) Craig Colo	J W Zepp Wray Colo	A H Adams Fort Meade Fla	R M Crum Homerville Ga
Jno Parkison Collbran Colo	Chas Green Le Roy Colo	A N Turney Yuma Colo	John B Escott Grasmere Fla	Dr H H Cary La Grange Ga
Dr S W Morrison Colorado Springs Colo	Miss Mary Johnson Leslie Colo	F W Rausch Zuck Colo	Thos Roberts Green Cove Springs Fla	Prof P Zellars Lincolnton Ga
A Reicheneker Como Colo	H L G Brown Livermore Colo	Connecticut.	J S Wade Homeland Fla	G W Warren Louisville Ga
A A Williams Cope Colo	W H McCreery Loveland Colo	H R Stevens (Birmingham)	H D Pierce Hypoluxo Fla	A W Latimer Lumpkin Ga
G W Close Cumbres Colo	S J Pratt McCoy Colo	G J Case Canton Conn	E R Demain Jacksonville Fla	G S Owen Marietta Ga
Agent U P R R Deer Trail Colo	E F Kerr (Middle Box Elder)	S P Willard Colchester Conn	W L Van Duzor Kissimme Fla	J W Frederick Marshallville Ga
W O Stephens Delta Colo	W M Stewart Minneapolis Colo	M H Dean Falls Village Conn	W B Knight Lake City Fla	O P Walling McArthur Ga
J J Gilligan Denver Colo	C S Aldrich Monte Vista Colo	Rev S Hart Hartford Conn	C V S Wilson Manatee Fla	S A Cook Milledgeville Ga
	F Beach Monte Vista Colo	W E Boardman Hartford Conn	Rev J H White (Merritts Island)	E L Campbell Monticello Ga
	A E Sprague Moraine Colo	New London Water Works (Lake Konomowoc)	Georgiana Fla	J J Beck Morgan Ga
	Frank W Hoskins Ouray Colo	New London Conn	A DeLaughter Moseley Hall Fla	J L Cutler Piscola Ga
		J H Tucker Lebanon Conn	Wm Bahrt (Mullett Key)	C M Witcher Point Peter Ga
		Charles W Hubbard Middletown Conn	Port Tampa Fla	J F Wilson Poulan Ga
		R R Smith New Hartford Conn	Miss M M Gardner Myers Fla	W M Towers Rome Ga
			Christopher Westall New Smyrna Fla	D B Dennis Talbotton Ga

List of voluntary observers of the Weather Bureau, etc.—Continued.

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Idaho.		J B Sheapley Martinsville Ill	C W Whitney Hammond Ind	Hon B R Vale Bonaparte Iowa	F G Thomas Mooar Iowa
Frank Campbell	American Falls Idaho	Dr G Leibrock Mascoutah Ill	J N Latta Hawpatch Ind	Moses Simon Carroll Iowa	Hon Wm Shriver Mt Ayr Iowa
Post Surgeon	Boise Barracks Boise City Idaho	J Withington Mattoon Ill	C F R Wappenhans Indianapolis Ind	Prof A C Page Cedar Falls Iowa	Dr Max E Witte Mt Pleasant Iowa
A C Bomar	Bonanza City Idaho	W P Gibbs McLeansborough Ill	Gus Gramelspacher Jasper Ind	H E Reister Centerville Iowa	Prof Alonzo Collin Mt Vernon Iowa
F C Gordon	Delta Idaho	J K Wood Mount Pulaski Ill	J C Loomis Jeffersonville Ind	Dr J W Smith Charles City Iowa	A W Lewis Murray Iowa
Post Surgeon	(Fort Sherman) Sherman Idaho	E E Thornton Muddy Valley Ill	Dr T C Hunter Kokomo Ind	A S Van Sandt Clarinda Iowa	A Lufkin Newton Iowa
A H Soward	Garden Valley Idaho	C H Fahs Olney Ill	Lafe Crosier Laconia Ind	Luke Roberts Clinton Iowa	G D Pattingill Osage Iowa
Wood River Times	Hailey Idaho	V E Phillips Olney Ill	Prof H A Huston La Fayette Ind	A A Berry College Springs Iowa	Jos Boyd Oskaloosa Iowa
J H Smith	X Idaho City Idaho	Dr W H Chappelle Oregon Ill	D E Pryor Logansport Ind	J W Bixby Corning Iowa	H C Miller Ovid Iowa
D McLoughlin	Kootenai Idaho	J S Seeley Oswego Ill	Wm P Goshnell Madison Ind	Gregory Marshall Cresco Iowa	Wm J Wicks Panama Iowa
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University of Idaho	Moscow Idaho	J K Eberle Pana Ill	Milton Reed Markle Ind	George M Chappel Des Moines Iowa	Dr Caleb Brown Sac City Iowa
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Dr F B Delano	Payette Idaho	Dr F Brendel Peoria Ill	J C Black Michigan City Ind	Chas Reinecke Elkader Iowa	H G Doolittle Sibley Iowa
Illinois.		H A Burr Philo Ill	J M Lockwood Mount Vernon Ind	H Conroy Emmetsburg Iowa	A J Bond Storm Lake Iowa
J W C Gray	Atwood Ill	Henry B Clark Rantoul Ill	Stevens & Durham Muncie Ind	L L Brigham Esterville Iowa	J M Rider Tipton Iowa
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W Holden	Aurora Ill	T D Robertson Rockford Ill	E Jones Princeton Ind	Seth Dean Glenwood Iowa	T F McCune Vinton Iowa
Prof M J Elrod	Bloomington Ill	N T Veatch Rushville Ill	Dr W N Wirt Rockville Ind	F L Williams (Grand Meadow)	W A Cook Washington Iowa
Dan E Zook	Bushnell Ill	Godfrey Knetzger Saint John Ill	J A Forsythe Seymour Ind	J G Culver Greenfield Iowa	C M Trumbauer Webster City Iowa
N P Halliday	X (Pres't City Nat'l Bank)	John Craig Springfield Ill	S B Morris Shelbyville Ind	Prof S J Buck Grinnell Iowa	Phil Dorweiler West Bend Iowa
	Cairo Ill	R Williams Streator Ill	Prof R G Gillum Terre Haute Ind	Chas G Rogers Grundy Centre Iowa	Merton L Fuller Williams Iowa
Public Library	X Cairo Ill	R Dow Sycamore Ill	J R Hart Union City Ind	E C Grenelle Hampton Iowa	Will McKnight Winterset Iowa
R O Purviance	Carlinville Ill	C D Crafts Tuscola Ill	Prof J N Roe Valparaiso Ind	J W Bopp Hawkeye Iowa	Kansas.
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Prof A O Clark	Dixon Ill	O A Watson Watseka Ill	Dr W B Squire Worthington Ind	Theodore Marks Hopkinton Iowa	J J Cass Allison Kans
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E B Schooley	Effingham Ill	Indiana.		Prof J L Tilton Indianola Iowa	C A Perdue Beloit Kans
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Post Surgeon	Fort Sheridan Ill	J T Moss Ashboro Ind	B S Thompson Lehigh Ind T	J B Parmalee Iowa Falls Iowa	L C Wilson Buffalo Park Kans
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Frank E Sanford	La Grange Ill	W J Davisson Farmland Ind	Prof F P Hocker Audubon Iowa	P W Hubbard Mechanicsville Iowa	Agent U P R R Ellis Kans
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			James Rodgers Blakeville Iowa		C D Perry Englewood Kans

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M H Kenaga Greensburg Kans	Agent U P R R Quinter Kans	J Buford Wood Richmond Ky	Maj S T Grisamore Thibodeaux La	McDonogh Institute McDonogh Md
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Geo P Griffith Hays City Kans	A B Wagoner Syracuse Kans	Rev Miles Saunders Springfield Ky	Dr W M Guice Winnsborough La	John G Knauer Sunnyside Md
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C Bishir Hutchinson Kans	Washburn College Topeka Kans	G W Shivell Wickliffe Ky	L H Murch Belfast Me	Woodstock College Woodstock Md
J M Altaffer Independence Kans	C E Wightman Tribune Kans		Dr D E Seymour Calais Me	Massachusetts.
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Prof F H Snow Lawrence Kans	M L Stone Wamego Kans		Dr L D Chauff Bonnet Carre La	Chas W Jenks Bedford Mass
C B Jennings Lebo Kans	W Calvert Washington Kans		Maurice Bird North Louisiana Exp Sta'n	F K Lathrop Beverly Farm Mass
C H Rhodes Liberal Kans	J W Tipton (Yates Center) Toronto Kans		Calhoun La	Prof A L Rotch (Blue Hill) Readville Mass
C E Poling Macksville Kans			Hon S P Henry Cameron La	Prof W H Niles Boston Mass
Agent U P R R McAllaster Kans	John E Younglove Bowling Green Ky		J A White Jr Clinton La	J Warren Smith U S Weather Bureau X
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C P Blachly Manhattan Kans	C H Major Canton Ky		Wm P Chandler Farmerville La	Harvard College Observat'y Cambridge Mass
Prof E R Nichols Agricultural College	J W Kirby Carrollton Ky		J R Brown Girard La	E C Brooks (Cambridge)
	C E Jones Catlettsburgh Ky		Rev Joseph A Raby S J Grand Coteau La	Mt Auburn Mass
E H Kern Mankato Kans	J B Atkinson Earlington Ky		O P Convillion Hamburg La	Desmond Fitz Gerald Brookline Mass
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A C Abbott (Marmaton) Fort Scott Kans	C D Lewis Eubanks Ky		D W Harris Homer La	
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A Bahl Monument Kans	L C Alcorn Greensburg Ky		Dr Wm Meyer Lake Charles La	
C H Foltz Moreland Kans	Dr F L Harrod Harrodsburgh Ky		J G Oldfield Lake Providence La	
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H N Renfrew Mount Hope Kans	J J Roberts La Grange Ky		Dr E A Crawford Liberty Hill La	
Porter Young Ness City Kans	J B Kinnard Lancaster Ky		J C Armstrong Many La	
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Geo W Keys Oberlin Kans	Frank Burke Louisville Ky	X	L J Dodge Melville La	
H D Leach Olathe Kans	C A Matlock Matlock Ky		Mrs J A Gebert New Iberia La	
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			Hon J E Le Blanc Paincourtville La	
				Fallston Md

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Boston Water Works Framingham Mass	E P Morton Webster Mass	L B Smith Hanover Mich	C E Crane Alma City Minn	J A Peck Wabasha Minn
Dr W E Brown Gilbertville Mass	Prof Sarah F Whiting Wellesley Mass	E S Shaw Harbor Springs Mich	Henry Gelting Beardsly Minn	A F Elfstrom Willmar Minn
John C Wheeler Great Barrington Mass	G S Newcomb Westborough Mass	W E Aldrich Harrison Mich	Warren S Jackson Bingham Lake Minn	A M Pett & Son Winona Minn
C Woolley Groton Mass	Williams College Obsy Williamstown Mass	Dr D W Mitchell Harrisville Mich	Dr F L Puffer Bird Island Minn	Mississippi.
Groton School Groton Mass	A E Sweetland Winthrop Mass	F H Edwards Hart Mich	C B Pettie Blooming Prairie Minn	W L McGee Agricultural College Miss
H W Cushing Hingham Mass	G W Swan Worcester Mass	Dr F R Timmerman Hastings Mich	John A Quick Boniwells Mills Minn	Augustus Studebaker Biloxi Miss
C F Sleeper Hyannis Mass	Worcester Academy Worcester Mass	C F Leipprandt Hayes Mich	J W Klinker Caledonia Minn	W H Swann Briers Miss
Essex Company Lawrence Mass	Michigan.	A D DeGarmo Highland Station Mich	O A Hallim Cambridge Minn	Dr G W Smith-Vaniz Canton Miss
D E Hoxie Leeds Mass	W H Howard Adrian Mich	E B Rogers Hillsdale Mich	Jacob Rouse Camden Minn	T B Word Clarksdale Miss
Leicester Academy Leicester Mass	Prof C E Barr Albion Mich	F W Munson Howell Mich	W V Davee Clear Lake Minn	D H Miller Crystal Springs Miss
W B Hosmer Leominster Mass	G W Grigsby Allegan Mich	O L Giddings Ivan Mich	Peter Engel Collegeville Minn	Lloyd T Binford Duck Hill Miss
Prop Locks & Canals Lowell Mass	P M Smith Alma Mich	W Bice Jeddo Mich	John Ross Crookston Minn	C W Barber Edwards Miss
F E Saunders Lowell Mass	R K Palmer Ann Arbor Mich	W A Black Kalamazoo Mich	D F Akin Farmington Minn	James E Mills Enterprise Miss
M W Graves Ludlow Center Mass	Wm Atkin (Arbela)	A G Smith Lake City Mich	F J Kneeland Fergus Falls Minn	I N Bedford Fayette Miss
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J C Haskell Lynn Mass	Mrs Ida McDiarmid Bear Lake Mich	A Lathrop Lathrop Mich	B C Finnegan Grand Rapids Minn	L Heyman Kosciusko Miss
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Middleborough Water Wk's Middleborough Mass	Dr H V Tutton Benton Harbor Mich	Dr G H Green Marshall Mich	Mrs Carrie D Lacy Kinbrae Minn	P E Blumer Moss Point Miss
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W H Allen Monroe Mass	W J Jones Berrien Springs Mich	John Randall Mio Mich	John Ellingson (Leech Lake)	Dr C W Bolton Pontotoc Miss
Dr G E Fuller Monson Mass	F A Zerby Berrien Springs Mich	Mrs A R Rogers Montague Mich	Grand Rapids Minn	Prof R B Fulton University Miss
T R Rodman New Bedford Mass	D B Alger Birch Run Mich	J A Hartzler Mottville Mich	A W Sheets Long Prairie Minn	Dr A J Sanderson Vaiden Miss
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Taunton Water Works Taunton Mass	A Wm Brown Gaylord Mich	J H Forster Williamston Mich	S Marlatt St Cloud Minn	W H Lown Canton Mo
Turners Falls Co Turners Falls Mass	Worden Wells Glenwood Mich	J C Bemiss Ypsilanti Mich	Rev O A Norman St Ollof Minn	Pettit & Welch Carrollton Mo
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				Levi Chubbuck Columbia Mo
				Fr Odilo Russell Conception Mo

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Wick Morgan Dadeville Mo	E S Allen Mount Vernon Mo	Mrs M W Alderson Bozeman Mont	A Dahl Ericson Nebr	D F Trunkey Red Cloud Nebr
W H Broaddus Darksville Mo	A H Helmbrecht New Boston Mo	Geo T Wicks Cokedale Mont	J A Wood. Ewing Nebr	J A Chadbourne Santee Agency Nebr
J F Rhea Dixon Mo	Andreas Olnhausen New Hartford Mo	John R Richardson Corbin Mont	Dr I Humphrey Fairbury Nebr	L E Ost Seward Nebr
David Sharp East Lynne Mo	Max Eimbeck New Haven Mo	College of Montana Deer Lodge City Mont	P B Gailord Fairfield Nebr	G H Rogers Springview Nebr
John S Luthy Edge Hill Mo	A I Zeigle New Palestine Mo	John G Hess (Dry Fork) Big Sandy Mont	Post Surgeon Fort Robinson Nebr	Mark Baldwin Stanton Nebr
J D McFarland Edina Mo	G E Nichols Neosho Mo	Post Surgeon Fort Custer Mont	Post Surgeon (Fort Sidney) Sidney Nebr	C A Skinner (State Farm) Lincoln Nebr
J H Sharp Eight Mile Mo	E E Steines (Oakfield) Hollow Mo	Post Surgeon Fort Keogh Mont	J N Bennett Franklin Nebr	J L Harrington Superior Nebr
S Newton Eldon Mo	Henry Bruhl Oak Ridge Mo	Wm Gaddis Fort Logan Mont	Isaac E Heaton Fremont Nebr	P W Kissner Syracuse Nebr
Henry Miller Emma Mo	H Montgomery Olden Mo	Post Surgeon Fort Missoula Mont	F M Flory Geneva Nebr	G D Carrington Table Rock Nebr
W H Baker Farmersville Mo	Wm Kaucher Oregon Mo	Post Surgeon (Camp Poplar River) Poplar Mont	G S Truman Genoa Nebr	W L Dunlap Tecumseh Nebr
Prof T Berry Smith Fayette Mo	Sam M Ruley Oregon Mo	J H Ray Glendive Mont	John P Finley Gering Nebr	Dr A D Nesbit Tekamah Nebr
Fred W Duencelk Forest Park Station	Chas P Love Osceola Mo	Chas L Herzog Great Falls Mont	C T O Williams (Glenwood) Palmer Nebr	C F Brown Thedford Nebr
	W B Cox Oto Mo	E J Glass Helena Mont	W Burghardt Haigler Nebr	W N Hunter Turlington Nebr
Wm Muir Fox Creek Mo	J R Dudley Palmyra Mo	C V Walker Hogan Mont	A R Dew Harrison Nebr	George L Folsom Wallace Nebr
Mary A Snyder Fulton Mo	C B Elliott Panacea Mo	R H Clendenin Martinsdale Mont	Thos B A Watson Hartington Nebr	Mrs J M Pile Wayne Nebr
Otto Sims Gainesville Mo	W S Forsyth Paris Mo	E H Brewster Mingusville Mont	Dr J T Fleming Harvard Nebr	G Treat Weeping Water Nebr
W P Young Gallatin Mo	W R McIlvaine Phillipsburgh Mo	J W Graham (Powder River) Powderville Mont	O F Heartwell Hastings Nebr	E G Bruner West Point Nebr
H C Crooks Galt Mo	M B W Harman Pickering Mo	Geo W Reif Virginia City Mont	Wm Waterman Hay Springs Nebr	John L Crossley Whitman Nebr
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Jos Milburn Glensted Mo	Dr M E Shelton Poplar Bluff Mo	Peter Fowle Ansley Nebr	John Lane Holdrege Nebr	W H Davis York Nebr
J W Pulliam Gorin Mo	Dr Wm Hiron Princeton Mo	E D Smith Arborville Nebr	J M Bird Imperial Nebr	Nevada. M D Murphy Austin Nev
L M Bean Gordonville Mo	G E Bedford Rea Mo	W F Jenkins Arcadia Nebr	H Adams Indianola Nebr	J R Harcourt Belleville Nev
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C M Hunt Irena Mo	C G Taylor Sedalia Mo	C G George Beaver City Nebr	D D Dayton Madrid Nebr	D Fowler Downeyville Nev
W H Delano Ironton Mo	J S Chandler Shelbina Mo	C E Ward Belvidere Nebr	John Ellis (Marquette) Central City Nebr	C H Sproule Elko Nev
C B Lane Jefferson City Mo	I N Morris Stanberry Mo	J F McGaughey Brandon Nebr	J Hull Mindne Nebr	M B Garahan Ely Nev
E H Adams Lamar Mo	E L Hall Steffenville Mo	L F Rector Burwell Nebr	Agent B & M Ry Mullen Nebr	Miss Bessie Potts (Empire Ranch) Care Geo Nicholl Belmont Nev
W D Wade Lamonte Mo	G W Goodlett (Stellada) Windsor Mo	O E Cooley Cooleyton Nebr	Prof C D Rakestraw Nebraska City Nebr	C P Mengel Hawthorne Nev
F M Joslyn Langdon Mo	E A Pinnell Steeleville Mo	Geo B Mair Callaway Nebr	J H Hassinger Nesbit Nebr	C Lewers (Lewers Ranch) Franktown Nev
M W Serl Lebanon Mo	Hon L Spriggs Sublett Mo	E M Couch Cornlea Nebr	Dr J L Greene Norfolk Nebr	E I Mather McDermitt Nev
Chas Tenbuer Lexington Mo	O J Townsend Unionville Mo	Dr G Roberts Creighton Nebr	E W Black North Loup Nebr	C J Adams Mill City Nev
J R Eaton Liberty Mo	F W May Virgil City Mo	Prof G D Swezey Crete Nebr	J F Gauss Ogallala Nebr	Miss Kate L McGill (Monitors Ranch) Ely Nev
W S Gardner Malden Mo	J R Mayre Vermont Mo	Robert P Hoxsey Crete Nebr	A U Morris O'Neill Nebr	Wm Oothout jr Palmetto Nev
J W James Mansfield Mo	Prof Geo L Osborne Warrensburg Mo	G A Loveland Crete Nebr	F M Larson Ough Nebr	N P Dooley Pioche Nev
E R Graham Marble Hill Mo	Prof J H Frick Warrenton Mo	Mrs L A Wibley Culbertson Nebr	C C Irwin Paddock Nebr	State University Reno Nev
E D Hicks Marceline Mo	Henry Mansfield Wellsville Mo	E B Taylor David City Nebr	C Shieldstream Palmer Nebr	L Allen St Clair Nev
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Dr. J F Llewellyn Mexico Mo	L A Dewey Whiteside Mo			

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Mrs Walter Stofel Stofel Nev	G S Briggs Charlotteburg N J	New Mexico.	Director Met'l Observatory Central Park New York City	M D Clinton Newark Valley N Y
Wm Harton Sunnyside Nev	Miss Louisa de Camp Chester N J	A Knell Albert N Mex	Dr Z A Spendley Chenango Forks N Y	Luther Leonard (Newfield Summit)
Henry F Schudt Tuscarora Nev	S A Miller Deckertown N J	M R Gaines Albuquerque N Mex	W S Blaisdell Cherry Creek N Y	Trumbull Corners N Y
James B Gilmore Tybo Nev	Wm C Harris Dover N J	E A Sutherland Chama N Mex	Chas E Taylor Constableville N Y	G A Yates New Lisbon N Y
Prof Mark Averill Virginia City Nev	H Y Postma Egg Harbor City N J	Henry C Pickles Clayton N Mex	G Pomeroy Keese Cooperstown N Y	C A Wooster North Hammond N Y
C H Gordon Wabuska Nev	J B Drake Elizabeth N J	Geo McGee Coolidge N Mex	Prof D L Bardwell Cortland N Y	Chas Fenton Number Four N Y
New Hampshire.	I H Levy D D S Franklinville N J	Dr Francis H Atkins East Las Vegas N Mex	C E Hallegas DeKalb Junction N Y	Dr P M Wise Ogdensburg N Y
Dr Q A Bridges Berlin Mills N H	J A Van Mater Franklin Furnace N J	S W Loomis Embudo N Mex	F W Squires Demster N Y	J P Davis Oxford N Y
Benj Tucker Bethlehem N H	Miss A S Yard Freehold N J	E A Clemens Estalina Sps (via)	Wm Bolling Dunkirk N Y	E B Bartlett (Palermo)
G W Bridges Brookline N H	H C Perry Friesburg N J	Magdalena N Mex	H Tabor (Easton)	Vermillion N Y
Hon W L Foster Concord N H	R N Cornish Gillette N J	F W McSchoolie Folsom N Mex	Post Surgeon Greenwich N Y	W H Jeffers (near Perry City)
H C Allison Dublin N H	James P Scullin Hammonton N J	Post Surgeon Fort Bayard N Mex	Wm P Hunt (Eden Centre)	Trumansburgh N Y
Agg Exp Sta Durham N H	J H Kitchell Hanover N J	Post Surgeon Fort Wingate N Mex	Oscar Snyder Eden N Y	C J Fuller Phoenix N Y
N A Briggs East Canterbury N H	C M Norton Hightstown N J	J E Whitmore Gallinas Spring N Mex	Gerity Brothers Elmira N Y	Post Surgeon Plattsburgh Barracks N Y
P R Kimball Grafton N H	Dr F C Price Imlaystown N J	E M Cosner Halls Peak N Mex	T P Yates (Factoryville)	C W Lansing Port Henry N Y
John M Wilson Groveton N H	Geo Fleming Junction N J	J E Smith Hillsborough N Mex	Waverly N Y	Prof John M Dolph Port Jervis N Y
Dartmouth College Obs'y Hanover N H	Dr F W Larison Lambertville N J	Mrs H T Findley La Luz N Mex	Robert Warwick Fleming N Y	G W F Smith Potsdam N Y
Sam Wadsworth Keene N H	W L Lance Jr (Lancewood)	Agr Exp Sta Las Cruces N Mex	Post Surgeon Fort Niagara	Vassar College Obs'y Poughkeepsie N Y
Lake Winnipesaukee Cotton and Woolen M'n'g Co	Whiting N J	Richard Pohl Los Lunas N Mex	Youngstown N Y	Dr H C Sutton Rome N Y
John D Howe Lancaster, N H	G W Hockenbury Locktown N J	E K Caldwell Monero N Mex	H J Davis Friendship N Y	J H Coryell Romulus N Y
Charles Nurse Littleton N H	Wm T Wilson Millville N J	C J Collyer Olio N Mex	Mrs N S Yates Geneva N Y	Selah B Strong Setauket N Y
W Little Manchester N H	T J Beans Morestown N J	H B Hersey Santa Fé N Mex	L W Chamberlain Gloversville N Y	James E Wilson South Canisteo N Y
Chas H Webster Nashua N H	F W Ricord Newark N J	C N Anthony Socorro N Mex	James Hyatt (Honeymead-brook)	D C Sharpe South Kortright N Y
W C Gale Newton N H	G C Sonn Newark N J	L Hines Springer N Mex	Bangall N Y	R T Church Turin N Y
J L Binford North Conway N H	Mrs G H Cook New Brunswick N J	Wm L McClure Taos N Mex	Chas E Whitney Humphrey N Y	Thomas Birt Utica N Y
Pennichuck Water Works (Pennichuck Station)	E W McGann New Brunswick N J	New York.	Engineering Dept Cornell University	H C Orr Varysburg N Y
Miss Helen M Clark Plymouth N H	D L Foster Newton N J	H R Ainsworth M D Addison N Y	Ithaca N Y	M F Webster Victor N Y
G C Ward Sanbornton N H	W Lake Ocean City N J	H A Wilder Akron N Y	Prof E A Fuertes Ithaca N Y	H C Townsend Wappingers Falls N Y
N B Waters Stratford N H	Rev S W Knipe Oceanic N J	W H Bassett Alfred Center N Y	R M Hardinge Ithaca N Y	George A Fairbank Watertown N Y
A R Sweetzer Tilton N H	J T Probert Paterson N J	Otto Ruhl Ampersand N Y	C L Bishop Jamestown N Y	M U Gerhard Watkins N Y
A A Higgins West Milan N H	E A Rodewald Pensauken N J	Prof John P Slocum Angelica N Y	R E Cronkhite Kings Station N Y	O F Corwin Wedgewood N Y
New Jersey.	John Neagle Plainfield N J	J D Tate Arcade N Y	Henry A Stone (Kingston)	W H Robinson West Chazy N Y
H Allaire Allaire N J	S Haines Rancocas N J	Miss Etta L Wilcox Arkwright N Y	Rondout N Y	Post Surgeon Military Academy
David C Bowen Asbury Park N J	J Fleming Readington N J	Asa Adams Atlanta N Y	Arthur K Harrison Lebanon Springs N Y	West Point N Y
T S Dilks Barnegat N J	A C Holdrum River Vale N J	S F Gould Avon N Y	Wm L Annin Le Roy N Y	Post Surgeon Willets Point
John H Eadie Bayonne N J	W H Lawson Salem N J	S C Suydam Baldwinsville N Y	Ed Tarbell Liberty N Y	Whitestone N Y
Prof C F Richardson Beverly N J	P Hardcastle Somerville N J	Merritt M Clark Bedford N Y	E Sweetland Little Valley N Y	North Carolina.
L I Hughes (Billingsport)	Dr W J Chandler South Orange N J	Supt State Hospital Binghamton N Y	W D Lovell Lockport N Y	Dr Karl von Ruck Asheville N C
Paulsborough N J	D T Atwood Tenafly N J	Dr Wm H Ross Brentwood N Y	C S Rice Lowville N Y	C N Allen Auburn N C
H A Jorden Bridgeton N J	H M Bunnell Toms River N J	Dr F A Winne Brockport N Y	Dr M A Veeder P O Box 602 Lyons N Y	J M Blount Bailey N C
C L Swain Boonton N J	E R Cook Trenton N J	D B Stillman Brookfield N Y	Post Surgeon Madison Barracks	J H Greene Bakersville N C
John Pinkerton Butler N J	Wm W Austin Vineland N J	F G Brill 891 Greene Ave	Sackets Harbor N Y	H C Martin Blowing Rock N C
L R Dey Camden N J		Brooklyn N Y	Albert B Johnson Malone N Y	Prof J W Gore Chapel Hill N C
		Prof H Priest	Dr S Talcott Middletown N Y	D E Stearns Columbus N C
			Edward A Smiley Minnewaska N Y	T B Lindsay Douglas N C

List of voluntary observers of the Weather Bureau, etc.—Continued.

F E Emery (Exp Farm) Raleigh N C	Prof E F Ladd Fargo N Dak	Chas Elliott Bladensburg Ohio	James Bull Hanging Rock Ohio	T G Briggs Sharon Center Ohio
E R Memminger Flat Rock N C	Dr W W Bradley Forman N Dak	S R Morris Bloomingburg Ohio	Rev Edward Seymour Harbor Ohio	T B Arnett Shenandoah Ohio
Enock Powell Henderson N C	F W Parsons Fort Stevenson N Dak	G C Houskeeper Bowling Green Ohio	J W Doncaster Hillhouse Ohio	George Olinger Springborough Ohio
Miss Albertine Staub Highlands N C	Post Surgeon Fort Yates N Dak	John E Peele Bloomington Ohio	J N Hogsett Hillsborough Ohio	B B Heaslett Strongsville Ohio
Barry C Hawkins Horse Cove N C	S J Pound Gallatin N Dak	J E Hopley Bucyrus Ohio	Prof G H Colton Hiram Ohio	G S Baker Stoutsville Ohio
Mrs R L Beall Lenoir N C	H H Mott Grafton N Dak	J W Scott & Sons Cadiz Ohio	Dr J B Owlesley Jacksonboro Ohio	N C Scott Sylvania Ohio
T F Lee Lewiston N C	University North Dakota Grand Forks N Dak	S Mehaffy Cambridge Ohio	L J Demarest Kenton Ohio	D D Thomas Thurman Ohio
Prof L W Bagley Littleton N C	T F Branch Jamestown N Dak	J G Oxer Campbellstown Ohio	B F Longwell Kilbourne, Ohio	Prof T H Sonnedecker Tiffin Ohio
Prof S D Bagley Louisburg N C	L C Stanford Kelso N Dak	C Peckenpaugh Camp Dennison Ohio	G W Nowels Killbuck Ohio	J T Dickey Tyrone Ohio
R F Bell Lynn N C	Miss H H Holton Lakota N Dak	Ed C Shingluff Canal Dover Ohio	J D Haderman Leipsic Ohio	Dr A Billhardt Upper Sandusky Ohio
J A Sinclair Marion N C	W E Hoover Larimore N Dak	C F Stokey Canton Ohio	J C Levering Levering Ohio	W M Smith Van Wert Ohio
Geo I White Morganton N C	Rev G A Harvey Mayville N Dak	R A Beatty Cardington Ohio	Dr G W Dallison Logan Ohio	W H Todd Vermillion Ohio
J W Ashby Mt Airy N C	E S Foley Medora N Dak	W H Ray Carrollton Ohio	W S Dean Lordstown Ohio	J W Barr Vickery Ohio
Prof H T J Ludwig Mt Pleasant N C	A C O Lomen Milton N Dak	Prof W F McDaniel Celina Ohio	J W Frye Lowell Ohio	John Courtright Walnut Ohio
W G Boyd Newbern N C	C D Vernon Minto N Dak	T S Wasson Cherry Fork Ohio	T W Connelly Manchester Ohio	M D McCorkle Warren Ohio
Prof Geo S Wills Oak Ridge N C	Julius H Hoof Napoleon N Dak	Alva Agee Cheshire Ohio	Prof T D Biscoe Marietta Ohio	Thomas Mikesell Wauseon Ohio
Prof A H Merritt Pittsburgh N C	S H Woodworth New Salem N Dak	J W Sage (Chicago Junction) Chicago Ohio	E H Raffensberger Marion Ohio	D Lorbach Waverly Ohio
Dr Herbert B Battle X Raleigh N C	M S Cuskelly Oakdale N Dak	E T M Williams Clarksville Ohio	Miss Nellie McGrath McArthur Ohio	E B Michener Waynesville Ohio
C F von Hermann X Raleigh N C	W A Power Power N Dak	G A Hyde 85 Kennard st Cleveland Ohio	C H Morris McConnellsburg Ohio	C F West Wellington Ohio
T C Harris Raleigh N C	John Cryderman St Johns N Dak	J A Sell Coatlon Ohio	S B Eveland McLuney Ohio	Prof J Haywood Westerville Ohio
Dr J M Stansil Rockingham N C	H B Walton (Sykeston) Carrington N Dak	L Reeve Colebrook Ohio	L H Burgess Milfordton Ohio	L S Motte West Milton Ohio
Dr James A Wise Roxborough N C	Hon J Jeff Dobbin Valley City N Dak	Hon L N Bonham X Columbus Ohio	G F Copeland Millport Ohio	Dr F Young Weymouth Ohio
J A Hedrick Salisbury N C	C A McKean Wahpeton N Dak	C M Strong X Columbus Ohio	Simon Waterston Montpelier Ohio	Mrs E P Wheeler Wheeler Ohio
Robt P McAnally Saxon N C	Peter Ross Wild Rice N Dak	Ohio State University Columbus Ohio	W H Harper Mountville Ohio	Ohio Agri Exp Station Wooster Ohio
Miss Adelaide Gardner Shelby N C	R A Yeater Williamsport N Dak	Mrs Edith E L Boyer Dayton Ohio	A C Seuter Napoleon Ohio	A G Frost Youngstown Ohio
David M Sholar Sloan N C	Peter M Cudhie Willow City N Dak	E P Hooker Defiance Ohio	J E Boyles Nelsonville Ohio	Oklahoma.
R J Noble Smithfield N C	C L Thomson Woodbridge N Dak	B R Ault Demos Ohio	Jos A Hook New Alexandria Ohio	C A Cleveland Anadarko Okla
H L Kimrey Soapstone Mount N C	Miss Sophia C Long Yule N Dak	E W Dimock Dupont Ohio	C Hall New Berlin Ohio	Wm Weselhoff Burnett Okla
Paul Clark Southern Pines N C	Ohio.	A C Allen Ellsworth Ohio	Dr A M Beers New Comerstown Ohio	F Cook Cloud Chief Okla
E V Zoeler Tarboro N C	Prof H V Egbert Akron Ohio	C W Goodspeed Elyria Ohio	Wm H Slabuck New Holland Ohio	Post Surgeon Fort Reno Okla
H H Harrison Warrenton N C	James W Barnes Annapolis Ohio	Prof A C Redding Findlay Ohio	H D Gowey North Lewisburgh Ohio	Post Surgeon Fort Sill Okla
T A Clark Weldon N C	N H Tillman Arcanum Ohio	Robbins Bros Fostoria Ohio	S Edgerton North Royalton Ohio	S C Grasham Gate City Okla
H Clay Williams Willeton N C	Dr P H Clark Ashland Ohio	O A Cory Frankfort Ohio	J C Peoples Northwood Ohio	Morris Collar Guthrie Okla
North Dakota.	Prof Eli Dunkle Athens Ohio	S M Luther Garrettsville Ohio	Prof F F Jewett Oberlin Ohio	Perry Rodkey Keokuk Falls Okla
Geo H Fay Ashley N Dak	L L Reed Auburn Ohio	Dr T W Gordon Georgetown Ohio	E U Hyde Orangeville Ohio	Henry C Sweet Mangum Okla
N S French Berlin N Dak	S M Painter Bangorville Ohio	Dr A D Cole Granville Ohio	J N Ridener Pataskala Ohio	James I Widmeyer X Oklahoma City Okla
W H Fallon X Bismarck N Dak	Ed C Ely Batavia Ohio	W B Longstreth Gratiot Ohio	C T Coates Plattsburg Ohio	Mrs Gertrude Sherbourne Ponca Okla
T S Lowrie Bottineau N Dak	Frank E Fitch Bellevue Ohio	Dones Bros Greenfield Ohio	Dr D N Allard Pomeroy Ohio	Miss Cosette Stratton Sac & Fox Agency Okla
H S Parker Cannon Ball N Dak	P W Barton Bement Ohio	J E Bentley Green Hill Ohio	Dr D B Cotton Portsmouth Ohio	Dr J C Neal Stillwater Okla
H D Orvis Churchs Ferry N Dak	J W Powell Benton Ridge Ohio	C G Katzenberger Greenville Ohio	A Shinn Ridge Ohio	J M Rice Winnview Okla
H Kepler Dawson N Dak	S Williamson Bethany Ohio	A B Saunders Guysville Ohio	W T Chapman Ridgeville Corners Ohio	Oregon.
Rev Jno Orchard Dickinson N Dak	N L Aylesworth Big Prairie Ohio	J B Conn Hackney Ohio	J W Gardner Ripley Ohio	John Briggs Albany Oregon
W H McKee Dunseith N Dak	J W Scott Bissells Ohio		J B Gish Kittman Ohio	James W Smith Arlington Oregon
Chas Ackley Ellendale N Dak				F H Carter Ashland Oregon

Geo Bennett Bandon Oregon	W C Stiles Williams Oregon	Thos F Sloan McConnellsburgh Pa	D W Hoyt Providence R I	M K Judy Forestburg S Dak
T L Arnold Beulah Oregon	Pennsylvania.	W T Butz New Castle Pa	C H Cannon Providence R I	Post Surgeon Fort Meade S Dak
W C Byrd Burns Oregon	Dr C B Dudley Altoona Pa	Dr Geo M Grim Ottsville Pa	South Carolina.	Post Surgeon Fort Sully S Dak
E S Penfield Canyon City Oregon	Richard Collin (Aqueduct)	R L Paddock 3911 Locust st W Philadelphia Pa	Joseph Black Blacksburg S C	Wm B Tapley Frankfort S Dak
U S Engineer Officer Cascade Locks Oregon	J Grathwohl Blooming Grove Pa	John E Codman Bureau of Water	Geo W Hopkins Brewer Mine S C	Wilbur Varnum Gale S Dak
Chas Myer Cornelius Oregon	Prof J G Cope Bloomsburgh Pa	H L Ball Philadelphia Pa	J H Harmon Columbia S C X	Dr W H Gates Gary S Dak
State Agr'l College Corvallis Oregon	A H Boyle Blue Knob Pa	John Comly Philadelphia Pa	M S Connor Connors S C	Frank Drew Highmore S Dak
E Bicknell (Box 307) Corvallis Oregon	David H Harvey (Browers Lock)	Franklin Institute Philadelphia Pa	J Pagan Flint Hill S C	W H Davis Hitchcock S Dak
W B Emmons Crook Oregon	J E Pague Carlisle Pa	Knowles Croskey Phoenixville Pa	W T Turbeville Georgetown S C	Anthony Johnson Hotch City S Dak
Dr G Wigg (East Portland) Portland Oregon	G W Ludwig Chambersburg Pa	R C Stover Point Pleasant Pa	J W Earle (Evergreen) Hollands Store S C	R S Person Howard S Dak
Prof S E McClure State University Eugene Oregon	W T Gordon Coatesville Pa	Dr Chas Moore Pottstown Pa	J P McNair Kitchens Mills S C	S W Glenn Huron S Dak X
Pacific University Forest Grove Oregon	Dr M H Boye Coopersburg Pa	J L Heacock Quakertown Pa	S H Price Marion S C	A S Stuver Kimball S Dak
J S Gray Gardiner Oregon	Wm Loveland Corry Pa	Franklin Yager Reading Pa	Pickney Brown Martins S C	W T Dale Mellette S Dak
Miss Jennie A Recher (Glenora) via Bay City Oregon	T H Walton Doylestown Pa	Miss E A G Apple Saegerstown Pa	J E Britt McCormick S C	J C Russell Midland S Dak
J B Paddock Grants Pass Oregon	J R Wagner Drifton Pa	Dr T B Orchard (Salem Corners)	T P Ravanel (Pinopolis) Monks Corner S C	J W Strouse Oelrichs S Dak
J H Neal (Happy Valley) Diamond Oregon	Theo Day Dyberry Pa	Wm Loveland Hamilton Pa	W G Peterson (Longshore) Newberry S C	Mrs M F Goddard Onida S Dak
A Smith Heppner Oregon	F C Wintermute East Mauch Chunk Pa	J A Roth Seisholtzville Pa	H D Elliott Port Royal S C	B W Kumler Parker S Dak
Dr P G Barrett Hood River Oregon	Dr J W Moore Easton Pa	J M Boyer Selins Grove Pa	Dr J H Hamilton Sedalia S C	J S Headley Parkston S Dak
W H Goudy Hubbard Oregon	C F Sweet Edinborough Pa	B W Dambley Skippack Pa	J E Haltiwanger Selma S C	Jno C Dresson Piedmont S Dak
E Britt Jacksonville Oregon	T B Lloyd Emporium Pa	Armstrong & Brownell Smethport Pa	Miss N L Dawson Simpsonville S C	G D Young Plankinton S Dak
J D McCullry Joseph Oregon	J C Hilsman (Forks of Neshaminy) Rush Valley Pa	Geo Lowder (Smiths Corners) Point Pleasant Pa	J J Lucas Society Hill S C	James F Cross Rosebud S Dak
J K Romig La Grande Oregon	G W Wood Frederick Pa	W M Schrock Somerset Pa	Dr W W Anderson Statesburgh S C	L V Schneider Salem S Dak
Saml T Malehorn Langlois Oregon	E C Wagner Girardville Pa	B M Hall South Eaton Pa	C A Long Trenton S C	Dr E S Carter Sioux Falls S Dak
L A Miller Lone Rock Oregon	N Moore Grampian Pa	Prof Wm Frear State College Pa	E Gaillard Trial S C	J H Warren Spearfish S Dak
Capt W Harris McMinnville Oregon	Wm Shipe Hamburg Pa	Prof Susan J Cunningham Swarthmore Pa	E L Dantzler Vance S C	H Richmond Tyndall S Dak
A C Muecke (Miramont Farm) Aurora Mills Oregon	Prof J A Stewart Hollidaysburg Pa	Wm Hunt Uniontown Pa	Dr J W Thomas Watts S C	University of South Dakota Vermillion S Dak
Rev Dr Urban Fisher S J Mount Angel Oregon	John Torrey Honesdale Pa	H D Deming Wellsborough Pa	J R Schorb Yorkville S C	M Maury Watertown S Dak
Edmund Robinson Newberg Oregon	Prof W J Swigart Huntingdon Pa	Dr J C Green West Chester Pa	South Dakota.	Arthur Betts Webster S Dak
Dr H J Fuller New Bridge Oregon	Prof S C Schmucker Indiana Pa	Harry Alger Westtown Pa	D G Gallette Aberdeen S Dak	J F Zimmerman Wentworth S Dak
John E Mathews Newport Oregon	E C Lorentz Johnstown Pa	A W Batterly Wilkes Barre Pa	W S Hill Alexandria S Dak	Harvey M Russ Wessington Springs S Dak
J H Zahner Pendleton Oregon	B P Kirk Kennett Square Pa	Chas Beecher Wysox Pa	Thos Aschroft Ashcroft S Dak	F H Brown Whitewood S Dak
B S Pague X Portland Oregon	R J Mickey Kilmer Pa	Mrs L H Grenewald York Pa	Jacob Simpson (Bear Valley S Dak) Beulah Wyo	G W Fink Wolsey S Dak
C T Roberts Salem Oregon	W E Bushong Lancaster Pa	Rhode Island.	I H Cobb Bowdle S Dak	J K P Wallace Andersonville Tenn
Hon J A Wright Sparta Oregon	H L Shull Lansdale Pa	N G Herreshoff Bristol R I	E A Cooper Britton S Dak	Rev C F Williams Ashwood Tenn
S L Brooks The Dalles Oregon	G W Hayes Lebanon Pa	N Helme Kingston R I	Prof Louis McLouth Brookings S Dak	Miss Daisy Bell Bethel Springs Tenn
Geo Hunt Tillamook Rock Oregon	Geo W T Warburton Le Roy Pa	Agr Exp Station Kingston R I	Lewis P Shew Carthage S Dak	Miss Mary Smith Bolivar Tenn
Dr H W Vincent Toledo Oregon	Prof Wm G Owens Lewisburgh Pa	G W Pratt Lonsdale R I	W F Van Dervoort Castlewood S Dak	J D Coe Byrdstown Tenn
F McDonald Vale Oregon	Howard Miller X Lewisburgh Pa	Thos Dunn Newport R I	H J Bennett Clark S Dak	Prof J A Lyon Clarksville Tenn
G W Dallas Vernonia Oregon	J T Ambrose Ligonier Pa	C H Cannon Olneyville R I	F J Cross (Cross) Etta Mine S Dak	J I Hall Covington Tenn
M A Baker Weston Oreg	Prof J A Robb Lock Haven Pa	J H Walker Pawtucket R I	J E Hennessy De Smet S Dak	J C Diemer Fayetteville Tenn
	Murray Forbes Lycippus Pa	Office City Engineer Providence R I	A A Humphrey Faulkton S Dak	Chas W Anderson Florence Station Tenn
	Chas Graves Meadville Pa	Ladd Observatory Providence R I	G A Perly Flandreau S Dak	Dr John A Campbell Franklin Tenn
				W H Brown Greeneville Tenn

List of voluntary observers of the Weather Bureau, etc.—Continued.

F H Sargent Harriman Tenn	W H Hamilton Box 169 Corsicana Tex	Capt Robt Strachan Rockport Tex	Agent R G & W R R Thistle Utah	B W Jones Spottsville Va
T E Search Harrogate Tenn	G A Eisenlohr Dallas Tex	Thos Wood Round Rock Tex	Vermont. W H Childs Brattleboro Vt	W N Parrott Stanardsville Va
R Downey Hohenwald Tenn	J A Whitfield Devine Tex	Gus A Duerler jr San Antonio Tex	W B Gates 55 Elmwood Avenue Burlington Vt	W C Hedrick Staunton Va
W C Hall Jacksboro Tenn	Anthony Blum Durham Tex	Geo W Knight San Marcos Tex	H L Bixby Chelsea Vt	W B Steele Stephens City Va
Hon T C Long Jackson Tenn	J C Edgar Duval Tex	G H Hutchins Sierra Blanca Tex	C H Lane Cornwall Vt	Clifford H Constable Warsaw Va
Dr J H Moninger Johnson City Tenn	J A Feddeman Eastland Tex	C M Tilford (Silver Falls) Mt Blanco Tex	J H Mears Enosburgh Falls Vt	H J Heuser Wytheville Va
L P Nelson Lookout Mountain Tenn	F E Black (Fay) Care Obs Weather Bur	L W Robinson Sugar Land Tex	E A English Hartland Vt	Washington. W B Mack Aberdeen Wash
J H Burrow Lynnville Tenn	El Paso Tex	W J Kimball (Stella) Houston Tex	Hon Geo E Stratton Hyde Park Vt	Miss Addie Davis Anacortes Wash
C Hawkins McKenzie Tenn	Henry T Williams (Flower Bluff) Corpus Christi, Tex	Prof H A Evans Sulphur Springs Tex	O W Locke Irasburg Vt	T P Hopp Bridgeport Wash
G W Martin (Missionary Ridge) 9 East 8th street Chattanooga Tenn	J N Morris Forestburgh Tex	W Goodrich Jones Temple Tex	Miss Martha French Jacksonville Vt	J H Wagner Centerville Wash
Dr J D Plunket X Nashville Tenn	Post Surgeon Fort Brown Brownsville Tex	Erskin B Barden Victoria Tex	Chas W Brown Norwich Vt	W H Mossman Chehalis Wash
J B Marbury X Nashville Tenn	Post Surgeon Ft Clark Brackettville Tex	Dr O Eastland Wichita Falls Tex	Chas A Brown Saxtons River Vt	Charles Johnson Chelan Wash
H C Bate X Nashville Tenn	Post Surgeon (Camp Eagle Pass) Eagle Pass Tex	Utah. Henry Fennimore Beaver Utah	Mrs J J Allbee Simonsville Vt	Buffum Bros Clyde Wash
Dr L W Hooper Newport Tenn	Post Surgeon Ft Hancock Tex	F W Quinn Bingham Utah	Geo H Manchester South Royalton Vt	Adam Stoneberger Colfax Wash
W C Thompson Nunnelly Tenn	Post Surgeon Ft McIntosh Laredo Tex	R Forrester Castle Gate Utah	H F J Scribner Strafford Vt	F W Arnold Crystal Springs Wash
R S Montgomery Palmetto Tenn	Post Surgeon Ft Ringgold Rio Grande City Tex	Agent R G & W R R Cisco Utah	A Whitehead Vernon Vt	Prof W W Hutton Davenport Wash
J C Williamson Parksville Tenn	A Striegler Fredericksburgh Tex	Willard Rogers Deseret Utah	E R Pember Wells Vt	S B L Penrose Dayton Wash
L Boynton Pikeville Tenn	D F Ragsdale Gainesville Tex	J J Starley Fillmore Utah	H F Dunham Woodstock Vt	Rev S R S Gray East Sound Wash
Ruskin Ferguson Riddleton Tenn	D D Bryan X Galveston Tex	Post Surgeon Fort Duchesne Utah	Virginia. C C Leadbeater Alexandria Va	Miss Ruth Kernahan (Elbe) Eatonville Wash
Miss Carrie Nugent Rogersville Tenn	I M Cline X Galveston Tex	Agent R G & W R R Green River Utah	Edw L C Scott Ashland Va	R Lee Barnes Ellensburg Wash
Dr W F G Wilson Rugby Tenn	A B Grant Graham Tex	B F Cooke Grouse Creek Utah	D MacGregor Avon Va	Frank Oviatt Ferry Wash
C L Hefner Savannah Tenn	W J Crowley Grape Vine Tex	John Crook Heber Utah	W N Stone Bedford City Va	Jno W Clendening Fort Simcoe Wash
W J Breeding Spring Dale Tenn	Dr J E Lay Hallettsville Tex	F Blumel (Lake Park) Farmington Utah	J W Fox Sr Big Stone Gap Va	Post Surgeon Fort Spokane
Lon W Smith Trenton Tenn	F Lusby Hartley Tex	William Brown Levan Utah	C R Moore Birdsnest Va	Miles Wash
G W Davidson Tullahoma Tenn	P D Saunders Haskell Tex	Thos A Jeffery Loa Utah	W O Frith Blacksburgh Va	Post Surgeon Port Townsend
Dr C Buchanan Waynesborough Tenn	K D Blankenship Highland Tex	James Dryden Utah Exp Sta	O A Brown Cape Charles Va	Port Townsend Wash
P B Calhoun Weir Tenn	J C Rickli (Kent El Paso Co) via Allamoore Tex	Logan Utah	A H Tuttle Charlottesville Va	R M Hoskinson Madrone Wash
Texas.				
N L Bartholomew Albany Tex	Capt J W Davis Liano Tex	E Caffall Losoe Utah	D A Heatwole Dale Enterprise Va	H B Scudder North Yakima Wash
Charles F Mercer Arlington Tex	W C Whitney Marshall Tex	R Moncur Mt Carmel Utah	H W Weiss Emporia Va	R C Willis Olga Wash
Prof H B Wayland Aurora Tex	G L Stone McGregor Tex	H Crouse Moab Utah	Albert Olszewski Falls Church Va	Observer Weather Bureau X Olympia Wash
Dr Q C Smith Austin Tex	Louis Runge Menardville Tex	W W Crossman Ogden Utah	Dr T C Montague Fredericksburg Va	Thomas M Whitcomb (Pine Hill) Lyle Wash
Ernest Kruger Austin Tex	S G Lackey Mesquite Tex	Alex Matheson Parowan Utah	Miss Jane S Worcester Hampton Va	Hon F W D Mays Pomeroy Wash
Dr J F Weatherhead Boerne Tex	Dr J C Riley Mountain Spring Tex	T H Martin Provo City Utah	C W Richardson Hot Springs Va	State Agri College Pullman Wash
W H Potter (Bear Creek) Brady Tex	R C Monk Nacogdoches Tex	O J Spencer Randolph Utah	Prof Edward Kinne Irwin Va	Hans Mumm Rosalia Wash
H Stevens Brazoria Tex	Capt Julius Geisecke New Braunfels Tex	Sarah Johnson Richfield Utah	Prof H D Campbell Lexington Va	Luther Wagoner Ruby Wash
Prof C S Newhall Brownwood Tex	C Runge X New Ulm Tex	Seth A Pymm Saint George Utah	J N Ryker X Lynchburgh Va	Wm Van Woert Silver Creek Wash
W M Spitzer Burnet Tex	A L Rush Ochiltree Tex	G N Salisbury X Salt Lake City Utah	A T Lincoln Marion Va	Dr C P Culver Tacoma Wash
G H Chipman Childress Tex	E H Snider Panter Tex	Henry Cullum (Singletree) Teardale Utah	G Dunn Nottoway C H Va	Jacob Hauptly Union City Wash
T O James Coldwater Tex	Robert H Henry Quanah Tex	Agent R G & W R R Scofield Utah	Prof J M Colson Jr Petersburgh Va	Prof L P Venen Vashon Wash
Prof Duncan Adriance College Station Tex	Hamilton Foster Roby Tex	J Robbins Snowville Utah	W H Pleasants Richmond Va	R W Starr Waterville Wash
W A Crowder Colorado Tex		Agent R G & W R R Soldiers Summit Stockton Utah	Prof S C Wells Salem Va	West Virginia. B P Ferrill Box 700 Bluefield W Va
			L S Bristow Jr Saluda Va	Dr D T E Casteel Buckhannon W Va
				J Benninger Central Station W Va

A Thomas Davis W Va	Clem F Kimball Appleton Wis	O E Rice Hayward Wis	Rev E M Corey Raymond Wis	Post Surgeon Fort Yellowstone
J J Tierney Elkhorn W Va	North Wisconsin Academy Ashland Wis	Prof E V Wernick Hillsborough Wis	Allen B West Reedsburg Wis	Mammoth Hot Springs Wyo
Henry Resseger Ella W Va	Wm Toole Baraboo Wis	E B Heimstreet Janesville Wis	J G Skeels Sharon Wis	Post Surgeon Fort Washakie Wyo
Levi Johnson Glenville W Va	E W Pierce Barron Wis	Rev A Brown Juneau Wis	Col W S Wood Shawano Wis	J S Meyer Lander Wyo
O G Augir Grafton W Va	Prof F W Denison Bayfield Wis	E S Koepenick Koepenick Wis	E R Daniels Shell Lake Wis	Prof B C Buffum Laramie Wyo
Lon H Hutchinson Huntington W Va	C L Mershaw Beaver Dam Wis	Edward Pollock Lancaster Wis	E W Crane Sparta Wis	J H Barron Lusk Wyo
J E Murdock Kingwood W Va	H E Story Belleville Wis	A J Looze Lincoln Wis	W N Toule Stevens Point Wis	J D Parker Saratoga Wyo
Andrew Price Marlinton W Va	Prof C A Bacon Beloit Wis	Washburn Observatory Madison Wis	J N King Valley Junction Wis	Sheridan Exp Farm Sheridan Wyo
Geo W Van Metre Martinsburgh W Va	L M Burt Black River Falls Wis	Miss Johanna Lups Manitowoc Wis	F W Alexander Viroqua Wis	Sundance Exp Farm Sundance Wyo
West Virginia University Morgantown W Va	R F Goellner Butternut Wis	J H Treat Meadow Valley Wis	Chas J Salick Watertown Wis	M R Johnston Wheatland Wyo
John W Chapman New Cumberland W Va	B C Curtis Cadiz Wis	Dr F Robert Zeit Medford Wis	A V B Dey Waukesha Wis	Foreign.
N Bandi New Martinsville W Va	R C Worthington Centralia Wis	A Pillsbury Menomonie Wis	Robert Reynolds Weston Wis	Dr C F Hering Burnside (Coronie)
L W Nuttall Nuttallburgh W Va	John Erb Columbus Wis	W L Moore X Milwaukee Wis	W Phillips Westfield Wis	Colony of Surinam
T G Field Parkersburgh W Va	Hon John Masbaum Crandon Wis	Bert Gale Mineral Point Wis	W D Buchholz Whitehall Wis	Dutch Guiana S A
W W Dent X Parkersburgh W Va	E S Austin Delavan Wis	Wm Heaslett Neillsville Wis	Wyoming	G J Gibbs Grand Turk
Wm D Tichenell Pleasant Hill W Va	Joseph G Lawton De Pere Wis	Aug A Paulsen New Holstein Wis	W D Pickett (Big Horn Ranch)	Turks Islands Brit W I
W D Holmes Point Pleasant W Va	Rev W N Sloane Eau Claire Wis	John Bender Oconomowoc Wis	W E Taylor Arland Wyo	Wm S Barr Hamilton Bermuda
Ed Corder Spencer W Va	John Halter Florence Wis	W K Smith Oconto Wis	Post Surgeon Bonanza Wyo	Prof T Scherer Port au Prince Haiti
G H Trembly Tannery W Va	J C Wedge Fond du Lac Wis	C W Staples Osceola Mills Wis	Camp Pilot Butte Rock Springs Wyo	Rev Benito Vines S J Belen College Obs'y
J A Minnick Weston W Va	James C Jensen Grantsburgh Wis	J Rufus Hunter Oshkosh Wis	E M Ravenscraft X Cheyenne Wyo	G Havana Cuba
Christian Schnepf Wheeling W Va	W J Egbert Hammond Wis	Dr O G Frink Pepin Wis	L F Black Evanston Wyo	J C Herring Topolobampo
Wisconsin. A J Smith Amherst Wis	S N D Smith Harvey Wis	Frank Cornelius Prairie du Chien Wis	Post Surgeon Fort McKinney Wyo	Sinaloa Mexico
				G Baturoni Vera Cruz Mexico

STATIONS OF THE WEATHER BUREAU.

Station.	Observer.	Station.	Observer.	Station.	Observer.
Abilene, Tex.	Allen Buell.	Leavenworth, Kans.	L. A. Welsh.	Corsicana, Tex.	E. L. Gibson.
Albany, N. Y.	A. F. Sims.	Lexington, Ky.	V. E. Muncy.	Cuero, Tex.	Dr. J. M. Reuss.
Alpena, Mich.	H. McP. Baldwin.	Little Rock, Ark.	F. H. Clarke.	Dallas, Tex.	H. P. Berry.
Atlanta, Ga.	Park Morrill.	Los Angeles, Cal.	G. E. Franklin.	Hearne, Tex.	W. A. Snell.
Augusta, Ga.	David Fisher.	Louisville, Ky.	Frank Burke.	Houston, Tex.	D. R. Saunders.
Baltimore, Md.	Dr. C. P. Cronk.	Manchester, N. H.	J. H. Melton.	Huntsville, Tex.	W. Y. Barr.
Bismarck, N. Dak.	Wm. H. Fallon.	Meridian, Miss.	George Hass-Hagen.	Luling, Tex.	J. E. Fisher.
Boston, Mass.	J. Warren Smith.	Miles City, Mont.	H. R. Boynton.	Longview, Tex.	G. W. Krech.
Buffalo, N. Y.	Cuthbertson.	Mobile, Ala.	Jas. A. Harry.	Orange, Tex.	J. H. Kelly.
Chicago, Ill.	Dr. H. C. Frankenfield.	Montgomery, Ala.	S. L. Dosher.	Sherman, Tex.	W. G. Jackson.
Cincinnati, Ohio.	S. S. Bassler.	Montrose, Colo.	P. J. Bolton.	Tyler, Tex.	W. A. Hartel.
Cleveland, Ohio.	W. B. Stockman.	New London, Conn.	R. O. Lazenby.	Waco, Tex.	W. H. Godber.
Colorado Springs, Colo.	U. G. Myers.	Northfield, Vt.	Wm. Line.	Weatherford, Tex.	J. Stickford.
Columbus, Ohio.	C. M. Strong.	North Platte, Nebr.	J. C. Piercy.	Little Rock, Ark. (center).	A. J. Hahn.
Davenport, Iowa.	F. J. Wals.	Oklahoma, Okla. T.	Jas. I. Widmeyer.	Brinkley, Ark.	J. H. Bard.
Denver, Colo.	J. J. Gilligan.	Oswego, N. Y.	J. G. Linsley.	Forrest, Ark.	A. J. Gaschen.
Des Moines, Iowa.	Dr. G. M. Chappel.	Palestine, Tex.	M. H. Perry.	Helena, Ark.	Miss M. E. Butler.
Detroit, Mich.	E. A. Evans.	Parkersburg, W. Va.	W. W. Dent.	Malvern, Ark.	R. C. McMann.
Dodge City, Kansas.	Geo. T. Todd.	Pensacola, Fla.	E. C. Easton.	Newport, Ark.	C. E. Thorne.
Duluth, Minn.	B. H. Bronson.	Pierre, S. Dak.	W. A. Shaw.	Paris, Tex.	J. E. O'Connor.
Eastport, Me.	D. C. Murphy.	Point Barrow, Alaska.	L. M. Stevenson.	Pine Bluff, Ark.	Wm. Friganza.
El Paso, Tex.	N. D. Lane.	Port Angeles, Wash.	Wm. Bell.	Prescott, Ark.	O. M. Ellsworth.
Galveston, Tex.	Dr. L. M. Cline.	Port Huron, Mich.	Wm. M. Edmondson.	Russellville, Ark.	M. J. Nash.
Havre, Mont.	Chas. W. Ling.	Portland, Me.	E. P. Jones.	Texarkana, Ark.	
Helena, Mont.	E. J. Glass.	Pueblo, Colo.	F. H. Brandenburg.	Memphis, Tenn. (center).	A. T. B. Etheridge.
Huron, S. Dak.	S. W. Glenn.	Raleigh, N. C.	C. F. von Herrmann.	Arlington, Tenn.	J. M. Cox.
Indianapolis, Ind.	C. F. R. Wappenhans.	Rapid City, S. Dak.	Wm. Norrington.	Batesville, Miss.	W. F. McCarley.
Jacksonville, Fla.	E. R. Dremain.	Red Bluff, Cal.	John J. McLean.	Bolivar, Tenn.	J. M. Johnson.
Kansas City, Mo.	P. Connor.	Red Wing, Minn.	F. T. Williams.	Brownsville, Tenn.	W. O. Henson.
Keeler, Calif.	H. E. Wilkinson.	Sacramento, Cal.	J. A. Barwick.	Corinth, Miss.	W. N. White.
Key West, Fla.	H. B. Boyer.	Saint Vincent, Minn.	H. W. Grasse.	Covington, Tenn.	J. M. Vickroy.
Knoxville, Tenn.	Henry Pennywitt.	San Antonio, Tex.	L. F. Passalaigue.	Decatur, Ala.	D. W. Bethel.
Lynchburg, Va.	J. N. Ryker.	Sandusky, Ohio.	B. F. Hough.	Dyersburg, Tenn.	L. B. Jones.
Manistee, Mich.	Arthur E. Hackett.	Seattle, Wash.	G. H. Wilson.	Hernando, Miss.	N. T. Bryant.
Marquette, Mich.	H. R. Patrick.	Shreveport, La.	C. A. Smith.	Holly Springs, Miss.	O. F. Cantwell.
Memphis, Tenn.	W. M. Wilson.	Sioux City, Iowa.	U. G. Purcell.	Milan, Tenn.	John Lasseter.
Milwaukee, Wis.	W. L. Moore.	Southport, N. C.	Louis Dorman.	Tuscumbia, Ala.	
Moorhead, Minn.	J. W. Byram.	Springfield, Ill.	John Craig.	Mobile, Ala. (center).	O. L. McKay.
Nantucket, Mass.	B. A. Blundon.	Springfield, Mo.	T. S. Collins.	Aberdeen, Miss.	W. B. Hopkins.
Nashville, Tenn.	J. B. Marbury.	Stanton, Fort, N. Mex.	Mrs. M. H. Bailey.	Columbus, Miss.	Miss Mattie Lee.
New Haven, Conn.	H. J. Cox.	Tatoosh Island, Wash.	Frank R. Beahan.	Evergreen, Ala.	L. J. Marbry.
New Orleans, La.	R. E. Kerkam.	Titusville, Fla.	Jos. E. Lanouette.	Livingston, Ala.	B. J. Allen.
New York City	E. B. Dunn.	Tucson, Ariz.	Wm. Burrows.	Macon, Miss.	S. J. Russell.
Norfolk, Va.	A. B. Crane.	Valentine, Nebr.	John Fitzgerald.	Okolona, Miss.	Jas. White.
Olympia, Wash.	H. F. Alciatore.	Walla Walla, Wash.	Fitzhugh Newman.	Thomasville, Ala.	Waynesboro, Miss.
Omaha, Nebr.	Geo. E. Hunt.	Wichita, Kans.	Dr. Fred. L. Johnson.	Montgomery, Ala. (center).	O. T. Moore.
Philadelphia, Pa.	L. M. Dey.	Winemucca, Nev.	Geo. D. Boucher.	Eufaula, Ala.	W. L. Van Pelt.
Pikes Peak, Colo.	U. G. Myers.	Woods Hole, Mass.	J. P. Slaughter.	Fort Deposit, Ala.	F. M. Smith.
Pittsburg, Pa.	O. D. Stewart.	Yankton, S. Dak.	A. J. Davis.	Marion, Ala.	W. L. Carmack.
Portland, Oregon.	B. S. Pague.			Union Springs, Ala.	J. B. Raab.
Rochester, N. Y.	A. L. White.			New Orleans, La. (center).	T. P. Wade.
Roseburg, Oregon	Thos. Gibson.			Alexandria City, La.	L. C. Giffe.
Saint Louis, Mo.	W. H. Hammon.			Anite, La.	Miss Florence Hills.
Saint Paul, Minn.	P. F. Lyons.			Brookhaven, Miss.	E. M. Bee.
Salt Lake City, Utah.	Geo. N. Salisbury.			Cheyneyville, La.	W. W. Wall.
San Diego, Cal.	M. L. Hearne.			Coushatta, La.	L. M. Howard.
San Francisco, Cal.	P. T. Jenkins.			Hazlehurst, Miss.	B. Fugate.
Santa Fe, N. Mex.	H. B. Hersey.			Lafayette, La.	J. J. Davidson.
Sault Ste. Marie, Mich.	C. L. Bozell.			Minden, La.	W. S. Hunter.
Savannah, Ga.	P. H. Smyth.			Natchez, Miss.	C. Steitenroth.
Spokane, Wash.	Chas. Stewart.			Natchitoches, La.	Sam Levy.
Tampa, Fla.	Thomas J. Considine.			Port Gibson, Miss.	H. H. Crisler.
Toledo, Ohio.	E. A. Hanner.			Savannah, Ga. (center).	J. S. Clark.
Vicksburg, Miss.	Dr. Robert J. Hyatt.			Albany, Ga.	C. I. Jones.
Washington, D. C.	S. W. Beall.			Americus, Ga.	L. A. Smith.
Wilmington, N. C.	F. P. Chaffee.			Bainbridge, Ga.	J. E. Peacock.
Yuma, Ariz.	A. Ashenberger.			Cordele, Ga.	W. D. Webster.
				Eastman, Ga.	C. H. Peacock.
				Fort Gaines, Ga.	S. E. Lewis.
				Gainesville, Fla.	James Bell.
				Millen, Ga.	J. R. Sheppard.
				Quitman, Ga.	A. W. Thomas.
				Thomasville, Ga.	Robt. Thomas, Jr.
				Way Cross, Ga.	F. L. Hall.
				Vicksburg, Miss. (center).	W. M. Greene.
				Greenville, Miss.	R. C. Wright.
				Jackson, Miss.	Miss Willie Wilkins.
				Lake, Miss.	W. W. Renwick.
				Monroe, La.	S. W. Langford.
				Rolling Fork, Miss.	W. R. Godfrey.
				Wilmington, N. C. (center).	P. H. Walsh.
				Cheraw, S. C.	Miss Nettie Thomas.
				Florence, S. C.	A. M. Perkins.
				Goldaboro, N. C.	B. M. Davis.
				Greensboro, N. C.	W. G. Boyd.
				Lumberton, N. C.	T. A. Clarke.
				Newbern, N. C.	
				Weldon, N. C.	
				Sugar and Rice Stations.	
				New Orleans, La. (center).	
				Baton Rouge, La.	H. A. Morgan.
				Covington, La.	F. W. Hosmer.
				Donaldsonville, La.	W. D. Park.
				Franklin, La.	E. M. Cornay.
				Lake Charles, La.	Wm. Meyer.
				Opelousas, La.	W. A. Sandoe.
				Rayne, La.	I. A. Smith.
				Schriever, La.	John T. Moore, Jr.

NOTE.—The stations from Abilene to Yuma take two observations daily, and furnish continuous records of wind-direction and velocity, precipitation, temperature, barometric pressure, etc., by means of self-registering instruments. The stations from Amarillo to Yankton take two observations daily, and maintain a continuous record of wind velocity. The stations from Astoria to Vineyard Haven take one observation daily in addition to other special duties. *Take one observation daily from April 15 to November 30 each year, and telegraph it to district centers.